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ETHICS AN INTERNATIONAL JOURNAL OF SOCIAL, POLITICAL, AND LEGAL PHILOSOPHY

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DEMOCRACY, SCIENTIFIC METHOD, AND ACTION[1]

RICHARD McKEON

I

SCIENCE and democracy have been developed and extended in their scope and effectiveness during the same period. Differences in definition may place their beginnings at different times, in ancient Greek philosophy and political organization, in medieval Scholasticism and ecclesiastical orders, or in modern movements initiated during the Renaissance; but, however conceived, science and democracy have been associated in their evolution, and both have been valued as means for the attainment of human happiness no less than as constitutive parts of human dignity and as ends in themselves. Democratic forms of discussion and decision were numbered by eighteenth-century philosophers among man's natural rights and the instruments for his improvement; and yet they were recognized, long before Fascists seized on this form of criticism, to be subject to errors, delays, and corruptions. Eighteenth-century philosophers related the perfectibility of man closely to the development of science; yet even in the eighteenth century the progress of knowledge was thought to be the source, rather than the solution, of man's problems and a cause for the deterioration, rather than the perfection, of the conditions of his existence; and the utopian expectations concerning the utilization of science have turned, even before their appropriation for the reinterpretation of science by Nazi philosophers, not so much on the realization of democratic forms as on the improvement of the materials and instrumentalities of life. Romantics have seen a conflict between freedom and scientific truth because the refinements of the arts and the sciences are dangerous to man's natural freedom and equality, while idealists and authoritarians have found a like conflict for an opposed reason, because the unrestrained impulses of untutored men run contrary to the authoritative prescription of scientific truth. On the other hand, since the associated careers of science and democracy afford evidence that the progress of science depends on freedom of thought and inquiry, and that the extension of democracy depends on the use of science, the defense of science and democracy from attacks has moved from recognizing their as-

[1] Read in part as a contribution to a symposium on "Is Scientific Method Neutral to Democracy?" held at the New School for Social Research under the auspices of the Conference on Method in Philosophy and the Sciences, April 11, 1943.

sociation to assimilating or even identifying them.

The alleged conflict between science and democracy is one consequence of simple oppositions and arguments which, though old in the sophistics of political and philosophic disputes, have reappeared vividly in practical and partisan resolutions of recent problems. In the *Protagoras*, Socrates pointed out long ago the peculiar problem of knowledge in a democratic state, where experts are consulted on technical questions, but on affairs of state everybody is free to have a say—carpenter, tinker, cobbler, sailor and passenger, rich and poor, high and low—and no one is properly subject to the reproach of not having learned and having had no teacher. It is possible that there is a kind of knowledge which will solve our social and political problems, and we like to talk of educational and social engineering. But, although the number and kinds of experts have increased in the modern state, there is still a difference between technical questions and affairs of state. The prototype of all utopias, the Republic of Plato, was to be ruled by those who know; but, whatever the achievements that might be expected from such rule, they are not the result of democratic discussion and resolution, and, whatever the reliance of the state on science, no practicable means have been found of testing the science, or resisting the pseudo-science, of those who have claimed to rule because they knew the truth. The Fascist can build plausible arguments to relate political power to scientific truth, since one needs knowledge and insight to choose the right solution in pursuit of the ends of the state or of science; and if social and political problems are scientific—in the same sense and fashion as the problems of geometry or chemistry, or even engineering or medicine—it is absurd to try to solve them by democratic plebiscite. Science is antithetical to democracy if dialecticians or technologists are equipped and empowered to resolve political problems.

The sophistical arguments, which caricature the Socratic position by substituting a spurious philosophy for dialectic, have betrayed defenders of science and democracy into equally sophistical attempts to reconcile them by showing not merely that science and democracy are mutually consistent or favorable to each other's development but that science is democratic and democracy scientific. In ancient Athens, Isocrates redefined philosophy to bring out its immediate application to affairs and the state, and his criticisms of sophistry would have applied to Socrates and most other philosophers; and indeed the reasons leading to Socrates' execution, both those alleged and those which underlay the allegations, put to political use arguments that made his philosophy seem sophistical. In its modern form, too, the argument designed to remove the conflict between science and democracy depends on a redefinition of science, for the link to democracy is sought, not in the "truth" to be achieved by science, but in the means provided by science for producing "social change." John Dewey, more than any other man, has devoted himself to developing the implications of this use of operations in definition of scientific method.

The very heart of political democracy is adjudication of social differences by discussion and exchange of views. This method provides a rough approximation to the method of effecting change by means of experimental inquiry and test: the scientific method. The very foundation of the democratic procedure is dependence upon experimental production of social change;

an experimentation directed by working principles that are tested and developed in the very process of being tried out in action.[2]

As in the Greek form of the argument, democracy becomes scientific when democracy and science are both thought of as methods of producing change.

The issue, so far as it bears on science, is between identifying science by the force and authority possessed by conclusions scientifically verified and identifying it by the processes of inquiry and test. As applied to the problems of democracy, this issue concerning the nature of science yields a paradox. Within science itself no paralogisms or paradoxes arise from the fact that the proofs of science result in standards and in propositions better grounded than their contraries, while the inquiries of science begin from the assumption that no idea, hypothesis, or technique possesses a priori a privileged status. However, when standards are standards of action, enforced by custom or law, there is a contradiction between the control which science might properly exercise and the freedom which might lead even to changes in what is held on scientific grounds.[3]

If it is true that error should not have the same privileges as truth when the two are clearly discriminable, it is likewise true that there are few subject matters that are not treated in a manner that passes as "scientific," few solutions that are not advanced with the authority of "science," and few techniques that have not adopted the terminology or claimed the characteristics of "scientific method."

As a result of the paradoxes in vogue concerning knowledge and action, practical problems have been involved in complex theoretic disputes and distinctions, and the influence of the principles of political discussion on action seems likely to be increased rather than diminished by the complexities, since sides may be taken on principle, from fear of dangers to obvious values, without painful inquiry into the consequences and implications of the principles. The serious dangers that follow from supposing science and democracy in conflict might blind us to the equally serious dangers that follow from identifying them, for it is an error in form rather than in matter to derive the principles of politics from the polemics of the times and to assert as

[2] *Fortune*, XXX, No. 2 (August, 1944), 188.

[3] Thus H. M. Kallen resolves the Socratic paradox concerning knowledge and democracy by finding an identical ground for freedom and science in the human mind and heart ("Freedom and Authoritarianism in Religion," *The Scientific Spirit and Democratic Faith* [New York, 1944], p. 3): "If the phrases 'The Scientific Spirit' and 'The Democratic Faith' are two, the disposition of mind and heart which they signify is one. 'Scientific spirit,' 'democratic faith,' convey an identical attitude in different but interacting undertakings of the human enterprise. They are diverse flowerings from a common root, and so related inwardly that where one sickens the other cannot remain in health, where one grows strong the other cannot remain weak. Members of one another, they survive together and they perish together. For the scientific spirit is the living according to the democratic faith in the world of ideas, and the democratic faith is the extension of the ethic of scientific method from the world of ideas to all the other human undertakings and institutions." D. A. Piatt urges the virtues of the Socratic recognition of standards at the other extreme of the paradox in his review of Kallen's position (*Journal of Philosophy*, XLII [1945], 130): "Impressed by the ethic of freedom and equality and the absence of dogma in science, Kallen goes on to say that the 'democratic faith is the affirmation of the right to be different.' He characterizes democracy as cultural pluralism and lauds the fact of our many religions, states, political parties, as though mutual tolerance could make authority and law indispensable. Where there are differences affecting the public interest, I fail to see the right to be different when and if the scientific method or reason can establish who is right and who is wrong. Science signifies authority and freedom together, the former as much as the latter, or so it seems to me, and there is a difference between authority and authoritarianism. And what sanction does science give for the plurality of states and religions so far as these are authoritarian?"

scientific truth principles which, though far from scientific accuracy or verifiability, are pertinent to the defense of ideals. Words can be stretched by poetic or theoretic analogy to cover anything that might in simpler analysis be opposed to literal meanings and practicable transformations. Meanings have therefore been found for edifying exercises in comparing the "society" of scholars to a democracy and assimilating democratic processes to scientific method. Scientific considerations, however, both theoretic and practical, suggest the wisdom of examining what has happened to the concepts of science and democracy as a result of their association and opposition in recent discussions. Efforts in definition, refutation, and defense undertaken in the name of democracy, science, and values have at least illustrated the complexity of the relations between communities, knowledge, and ends. The effects of analogizing or identifying scientific method and democratic process will therefore be seen more clearly if some distinctions are made in three phases of the relations of democracy and science which are merged in simple contrasts and comparisons, for the manner in which democracy influences science is distinct from the operation of science on democracy, and the differences between their modes of action on each other suggest a need to question their a priori identification.

Communities, to begin with, condition the development of science and determine the survival of values. Communities and the associations of men are at once environment, impetus, and control to the progress of science and the growth of knowledge. For science does not originate or increase within the skulls of single men, however solitary the habits of any particular scientist, nor does it spring from the simple contact of the inquiring mind with the facts of nature, but inquiry is a social phenomenon and the problems of science are formulated and solved in social contexts and by data and means transmitted from scientist to scientist. Communities and tradition are likewise custodians of ends. For values are not the expression simply of individually determined preferences nor the impartial recognition of objective goods, but appreciation of values and attachment to them depend also on an ingredient of social approbation (even when the values are not spurious and the approbations not purely conventional) and on the transmitted insight and wisdom of the past of some one society and of the civilizations that have influenced it.

Science, conversely, has affected the communities and the ends of men. It has modified the means of communication on which those associations depend and the materials which constitute the resources and the problems of societies, and it has enlarged the sphere of material and ideal ends, both by the advance of knowledge concerning matters with which the community deals and also, as the writers of the *Federalist* papers suggest, by the opening of new vistas of theoretically possible association through developments in sciences concerned with the forms of association themselves. For communities depend for their existence and continuance not merely on common needs and common interests, nor even on the operation of power and the maintenance of control, but knowledge is needed at least to determine need and interest and to direct the application of force. Science likewise is pertinent to ends, since it is a powerful instrument in their achievement. For values are not determined merely by

wants or by considerations of what is available but depend upon the calculations of pertinent knowledge to bring what is desired into some relation with what ought to be and to extend the limits of what is attainable.

The case for democracy rests on the evidence—sought in history and in abstract (or, as Mill would have preferred, in concrete) argument from principles found in the nature of man—of its superior performance in securing moral, material, and social values, among them opportunity for the pursuit of science and wisdom. Science itself and many of its applications are human goods, and they further affect the possibility and accessibility of other human goods, among them the privileges of free and equable associations. These two relations between democracy and science—the influence of democratic institutions on the pursuit of science within the framework of those institutions and the influence of scientific and technological developments on the problems and forms of democracy—are not only distinct from each other but they in no unique way predetermine the relation of the methods of science and democracy, the use of scientific methods in the solution of social and political problems or the use of democratic processes in application to scientific problems. The problems and materials of human association are doubtless subject to scientific analysis (notwithstanding disputes concerning the precise character of the scientific methods to be employed), but it does not follow from that fact alone that the problems of action to be taken can be solved by the same manner of analysis as is successful in explaining actions taken. The associations of scientists doubtless follow patterns found also in other groups, and some democratic devices may be useful as methods for selecting and training scientists, for extending opportunities for scientific research, and for publishing data and results of inquiries; but the methods by which the personnel is assembled and the materials, problems, and results of science are set forth do not have any simple analogy to the methods by which solutions are found and established.

Yet in spite of the fact that it is difficult to find or state the points of similarity between scientific method and democratic process, the interdependences of democracy and science, no less than the value attached to both, have come to be seen and expressed as analogies, honorific in intention and polemic in formulation; and, in the comparison, the conceptions of science and democracy are modified by each other. It is not a simple interaction of the two concepts, and not the least among factors which contribute to the transformation is the current fashion of discussing all fundamental problems of science and philosophy in terms of method, for the ancient paradoxes, which were once the property of metaphysics or epistemology, are now problems of method. The distinctions and interrelations of science, human associations, and values can no longer be set forth by consideration of relevant objects and subject matters, for that would involve metaphysics and a naïve "spectator theory" of knowledge; nor is it safe to appeal to principles of the mind or of human nature, lest one be betrayed into epistemology and a naïve commitment to the a priori. Once subject matter and principles have been eliminated, there is little to differentiate one method from another except the important decision concerning whether method be sought in language or in operations, in the ways in which we talk

about our problems or in the operations we perform in their solution. Whether one decides for positivism or operationalism, the problem of the relation of science and democracy is rendered easy of solution by a simple paradox, for either the method of democracy is the same as the method of the sciences or else the moral and political sciences have no method in the strict sense. Metaphysical distinctions have become prominent in the discussion of the paradoxes of method, even to the point of being used as grounds for pronouncing metaphysical propositions meaningless; and indeed there seems to be no reason why the distinctions treated in metaphysics should not eventually be made as accurately as they were in the older terminologies provided the analysis of method is carried back to first principles. Metaphysics always had methodological implications, even to the point of having been defined early in its development as the science of first principles as well as the science of being *qua* being, and adherents to the unity of science have already come reminiscently close in their opposition to the defenders of the plurality of methods and sciences to the doctrines of proponents of the unity of God.

The theoretic aspects of the influence of democracy on science are not so immediately pressing as the practical consequences of the influence of science on democracy. Notwithstanding the talk of method, the consequences of the naïve identification of scientific method and democratic process is a prejudging of either scientific or political problems, and the failure to examine principles is, as John Stuart Mill pointed out, less of an impediment to solving scientific than moral problems. Theoretic questions may be left safely, despite delays and confusions, to the speculations of metaphysicians and semanticists of method; but prejudgments in political problems are prejudices, even when expressed in espousal of scientific method, and they constitute a grave danger in contemporary political discussion, since they introduce and conceal doctrines mutually incompatible and rationally incomparable. The literature of criticism and alarm, which has accustomed us during the last twenty-five years to numerous diagnoses and irreconcilable solutions of social and political problems, is itself a significant sign of their nature. The oppositions of partisan advocacy and dispute, moreover, have their extensions in wars, for war is an instrument of control and resolution of the immediate consequences of economic, social, and political confusions and errors, and problems are simplified in times of war in so far as the ends of military victory are determined and other ends are subordinated to them, yet despite this apparent simplification of ends, wars are hedged by disguised forms of the same partisanships and limitations that led to the use of force. The stages of the war's progress reproduce the crises which preceded it and which it was meant to resolve, and occasions are afforded again for enthusiasts to urge every creed and principle, every untried educational theory and neglected religious doctrine, every prejudice and distinction, every economic reform and social preachment as devices by which catastrophe might yet be avoided.

The relation of democracy and science is no removed theoretic problem, since any dogma may be urged as grounded in knowledge or as a privilege of freedom, and what passes for science may be presented either as inconsistent with democracy or as requiring certain modifications in democracy if democracy is to be concordant with science, while what

passes for democracy may likewise be presented either as inconsistent with the demands of scientific accuracy and efficiency or as requiring certain modifications in the conception of science to make it useful in society. Even force and propaganda are defended, when their use is acknowledged, on the ground that they may be employed for good as well as evil ends, and even when there is apparent agreement concerning ends, the agreement is dissipated in oppositions between plausible knowledge of effective means and plausible dangers to free decision. Once disentangled from the confusions of doctrinaire commitments, the problem of the relation of democracy and science turns on the dangers and distortions which prevent the effective use of reason and agreement in the selection and achievement of ends. These are problems of the practical consequences of theories of democracy and science which may be clarified by the mutual effects of the concepts of democracy and science modifying each other, first, as democracy influences science; second, as science influences democracy; and, finally, in the characteristics of their respective processes and methods.

II

The merging of science and democracy sometimes takes its start from the consideration that science, like all human activities and productions, depends on society, community, and communication among men. It was this dependence of all the sciences on society that Aristotle had in mind when he said that politics is the architectonic art and science, the most authoritative of them all,[4] for the customs, institutions, and explicit regulations of the community determine what activities and sciences are esteemed, who shall learn them and to what point, and what applications shall be made of them. The good at which communities aim is justice or the common interest which, Aristotle pointed out, all men conceive to be a kind of equality, though not in all things; and the consideration of that end leads, on the one hand, to a definition of the citizen by his share in the functions of government, which is realized best in a democracy, and, on the other hand, to the conclusion that citizens are fitted to exercise these functions only if they acquire the appropriate knowledge or practical wisdom. Even Aristotle associates democracy and knowledge in this fashion in the discussion of basic political problems. Although he was far from thinking democracy the best form of government, he acknowledged that his preliminary suppositions and definitions in political philosophy are better suited to democracy than to other forms,[5] and he finds the advantage of a constitutional form of government in the coincidence it permits between the virtue of the good man and that of the good citizen, since the good ruler is the man who has acquired practical wisdom.[6] So conceived, the problem of the democracy is one of moral education, the training of the citizen to the perception of political problems and the capacity to resolve them. Science in the strict sense is distinct from this practical wisdom, although it is among the goods at which the state aims, at once a virtue of the good man and a proper activity of the good citizen, and one of the instruments for the achievement of the common good.

This dependence of science on society, however, suggests a genetic relationship between the state of mind, or the cul-

[4] Cf. *Nicomachean Ethics* i. 1–2, $1094^{a}1$–$^{b}11$; *Politics* i. 1. $1252^{a}1$–6; iii. 12. $1282^{b}15$–18.

[5] *Politics* iii. 1. $1275^{b}4$.

[6] *Ibid.* 4. $1277^{a}13$.

tural configuration, favorable to democracy and the psychological, or sociological, conditions of the pursuit of science, for free discussion and the discovery and development of new ideas seem likely products of the same spirit and circumstances, if indeed free discussion is not the cause of science. The plausibility of this relation, which makes recognition of it seem a new step in the advance of science, depends on an old shift of concepts. Aristotle's distinction of practical from theoretic science was a conscious rejection of Socrates' earlier identification of virtue with knowledge. More recent conceptions of the dependence of science on free discussion have been involved in a paradox that has dogged the analysis of science and politics since the time of Socrates, for freedom of discussion may be a source of new ideas, but new ideas may be good or bad and, unless the discussion is informed and competent, false ideas are at least as likely to be accepted after discussion as true ideas. Socrates remarked the freedom of speech which characterized democratic Athens,[7] and he may have connected it with the love of knowledge, which, he held, was a quality peculiar to Greek states and Greek men.[8] Yet he had no enthusiasm for democracy or for the pretenses of the democratic man to philosophic knowledge;[9] and the equation of virtue and knowledge meant for him that the perfect state would be possible only when the rule was assumed by those who possessed adequate training in the mathematical sciences and dialectic. The paradox is more apparent when the association of freedom and love of truth is in this fashion given philosophic statement, but the irony is more poignant in the confidence expressed by Pericles that the freedom of the Athenians and their cultivation of beauty without extravagance and of knowledge without effeminacy are related aspects of the democracy by which Athens had become the school of Hellas,[10] for Athens has been the school of the world not only in beauty and knowledge but also in the multiple errors which accelerated the doom of her democracy.

The speculation of Pericles is still tempting, although the relations of modern science to modern democracy are no less complex and paradoxical than those of ancient philosophy to ancient democracy. Walter Bagehot, in 1872, after remarking that the relation of physical knowledge to politics and political economy was a subject novel in his times,[11] argued that the proliferation of ideas, the detachment from prejudice, and the subjection to reason in ancient Athens were consequent on freedom of discussion.[12] Moreover, he saw the same relations exemplified in modern democracy, since the achievements of Locke and Newton in the preceding centuries and of Darwin in his own made it plausible that the appearance of great and original ideas in science is rooted in some quality in English thought which is a product of the exercise of government by discussion.

> In both cases I believe the reason of the English originality to be that government by discussion quickens and enlivens thought all through society; that it makes people think no harm may come of thinking; that in England this force has long been operating, and so it has developed more of all kinds of people ready to use their mental energy in their own way, and not ready to use it in any other way, than a despotic government.[13]

[7] *Gorgias* 461E.

[8] *Republic* iv. 435E.

[9] *Ibid.* viii. 561D.

[10] Thucydides ii. 37–41.

[11] *Physics and Politics* (New York, 1875), p. 1.

[12] *Ibid.*, pp. 167–71.

[13] *Ibid.*, p. 204.

There can be no doubt that science is so compounded with other phenomena in society that as social phenomena they influence each other and are mutually explanatory, and it is plausible that the occurrence and first development of science depend on conditions proper to, or promoted by, free government or democracy. The satiric picture which Plato has Socrates draw of the activities of the democratic man, however, is still bitterly suggestive of the fact that the occurrence of new ideas is not the whole of science, nor indeed always relevant to science, and that free discussion yields other fruits than new ideas.

Even if the relation between the development of science and free discussion, which is asserted by Pericles and Bagehot, be accepted as a plausible and attractive hypothesis, the significance and truth of the hypothesis can be examined only if the correlation is sought in facts, and that inquiry in turn depends on a more precise statement of the characteristics of the science sought and of the marks by which freedom and democracy are recognized. The old Socratic paradox of the opposition of requirements of truth to those of novelty in ideas has modern consequences in the redefinitions of science and freedom incidental to the examination of facts bearing on their relationship. John Stuart Mill, thus, reports less encouraging facts concerning the effects of free discussion in England. Like Socrates, Mill had labored to apply knowledge and scientific method to moral questions, and both the method which he elaborated for social science and the methods which he criticized in the sixth book of the *System of Logic* (1843) are based on the analogy of the natural sciences. In 1831, however, a decade before the publication of his *Logic* and some forty years before Bagehot worked on the relations of physics and politics, which he thought novel to his times, Mill expressed doubts, grounded in Socratic standards of truth, concerning the effects of discussion on the intellectual and cultural character of the age. Old institutions had been changed and old doctrines discarded, but the altered state of opinion and feeling did not suggest to Mill a development of mental energy or a growth of human understanding. Where Bagehot used the standard of novelty and found originality in English thought, Mill sought to test the quality of the thought and found the grand achievement of his age in the diffusion of superficial knowledge.[14] Like Bagehot, he traced the source of the characteristics of his time to discussion, and, while he acknowledged discussion to be a method by which truths are discovered, he showed it also to be a more likely method for the introduction of new errors.

> To discuss, and to question established opinions, are merely two phrases for the same thing. When all opinions are questioned, it is in time found out what are those which will not bear a close examination. Ancient doctrines are then put upon their proofs; and those which were originally errors, or have become so by change of circumstances, are thrown aside. Discussion does this. It is by discussion, also, that true opinions are discovered and diffused. But this is not so certain a consequence of it as the weakening of error. To be rationally assured that a given doctrine is *true*, it is often necessary to examine and weigh an immense variety of facts. . . . . But the moment, and the mood of mind, in which men break loose from an error, is not, except in natures very happily constituted, the most favourable to those mental processes which are necessary to the investigation of truth. What led them wrong at first, was generally nothing else but the incapacity of seeing more than one thing at a

[14] John Stuart Mill, *The Spirit of the Age* (Chicago, 1942), pp. 9–10.

time; and that incapacity is apt to stick to them when they have turned their eyes in an altered direction.[15]

Mill consequently contrasts the natural sciences (in which he finds an imposing unanimity) with the sciences which are conversant with the moral nature and social condition of man (in which he finds so little consensus that every babbler thinks his opinion as good as another's),[16] and his conclusion is not that science is democratic or democracy scientific but that it is one of the necessary conditions of humanity that the majority must either have wrong opinions, or no fixed opinions, or must place the degree of reliance warranted by reason in the authority of those who have made moral and social philosophy their peculiar study.[17] Recognition of the dependence of science on society, community, and communication may thus suggest either a relation between free discussion and the development of science through the occurrence of new ideas or the need of checking the results of free discussion by the use of science. On either point, the controversy is too violent to be resolved readily by the amenities of free discussion or the niceties of scientific distinctions, and even in our age those who have followed the novelties of discussion as a means of fitting science to the social structure have been accused of the amoralism and relativism which results from lack of criteria, while those who have sought the fundamental ideas which underlie the social structure as a means of applying science to social problems have been charged with dogmatism and authoritarianism.

The pessimism which Mill expresses concerning the general culture of his age is, moreover, extended by contemporary scientists to a concern with the decline of science. In 1830, Charles Babbage could quote Davy and Herschel, in his *Reflexions on the Decline of Science in England and Its Causes*, to reinforce his opinion that science had long been neglected and was consequently declining in England.

It cannot have escaped the attention of those who have had opportunities of examining the state of science in other countries, that in England, particularly with respect to the more difficult and abstract sciences, we are much below other nations, not merely of equal rank, but below several even of inferior power.[18]

[15] *Ibid.*, pp. 14–15.

[16] *Ibid.*, p. 21.

[17] *Ibid.*, p. 31.

[18] Quoted by J. T. Merz, *A History of European Thought in the Nineteenth Century* (London, 1923), I, 234–35. According to Babbage, Sir Humphry Davy had begun a treatise on the decline of science in England which he did not live to complete. It was written "in the language of feeling and eloquence," and indication of the direction of its strictures is given (cf. *Reflexions on the Decline of Science in England* [London, 1830], p. vii) by citation from his *Consolations in Travel* (edited by his brother, Dr. John Davy, and published posthumously in 1830) of his judgment that men of rank and fortune no longer apply themselves to philosophic and scientific pursuits, that very few persons pursue science with true dignity, and that it is followed more as connected with objects of profit than those of fame (cf. *Collected Works of Sir Humphry Davy*, IX, 376). His brother quotes from his notes the aphorism: "Science is more neglected in this than in any other age: men are too much taken up in attempting to produce the *minor arts*. The philosophical spirit is too much banished from all our forms and all our methods; that spirit which Bacon has characterised as the germ of life in the sciences" (*Memoirs of the Life of Sir Humphry Davy, Bart.* [London, 1836], I, 376). Sir J. F. W. Herschel is quoted in a like pessimistic vein (cf. Babbage, *Reflexions*, p. viii and *Quarterly Review*, XLIII [May and October, 1830], 307): "In England, whole branches of continental discovery are unstudied, and indeed, almost unknown, even by name. It is vain to conceal the melancholy truth. We are fast dropping behind. In mathematics we have long since drawn the rein, and given over a hopeless race. In chemistry the case is not much better. Who can tell us anything of the sulphosalts? Who will explain to us the laws of isomorphism? Nay, who among us has ever verified Thenard's experiments on the oxygenated acids? Oersted's and Berzelius's on the radicals of the

The reasons for the decline are found in the lack of interest in science in England sufficient to make it a distinct profession, comparable in attraction to the profession of law which attracted the best talent of the country, and in the absence therefore of trained men, facilities, incentives, and standards.[19] It is considered a problem of "national genius" by the reviewer of Dealtry's *Principles of Fluxions* in the *Edinburgh Review* of 1816 that a textbook which is so inade-

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earths? Balard's and Serullas's on the combination of brome, and a hundred other splendid trains of research in that fascinating science? Nor need we stop here. There are, indeed, few sciences which would not furnish matter for similar remark. The causes are at once obvious and deep seated; but this is not the place to discuss them." Yet the final chapter of Herschel's *Preliminary Discourse on the Study of Natural Philosophy* (London, 1850) is devoted to a statement "Of the Causes of the actual rapid Advance of the Physical Sciences compared with their Progress at an earlier Period," and the causes of the progress of science in this broader purview are found in the great increase in wealth and civilization, the founding of institutions for the promotion of science and of journals for the publication of the results of scientific inquiry, and the improvement of scientific instruments and scientific methods. An answer to Babbage's criticism was prepared by Professor Gerard Moll and published anonymously, with a preface by Faraday, under the title *On the Alleged Decline of Science in England*, by a Foreigner (London, 1831). Although none of the participants in this dispute pauses in his consideration of the relation of science to material aid or the ends of fame to speculate on the relation of science to political democracy, Babbage does see some connection between the excellence of French science and the triumphs of Napoleon (cf. *Reflexions*, p. 25).

[19] Merz quotes among the reasons alleged by scientists those stated by Babbage (cf. *op. cit.*, p. 234): "The pursuit of science does not in England constitute a distinct profession, as it does in many other countries. . . . . Even men of sound sense and discernment can scarcely find means to distinguish between the possessors of knowledge merely elementary and those whose acquirements are of the highest order. This remark applies with particular force to all the more difficult applications of mathematics; and the fact is calculated to check the energies of those who only look to reputation in England." The reviewer of Babbage's book in the *Quarterly Review* (XLIII [May and October, 1830], 305–42) argues that the devices suggested by Babbage—the reform of the universities, the reorganization of the Royal Society, and even the institution of an order of merit and the use of ranks of nobility—are insufficient for the encouragement of science, and a major part of the review (pp. 332–41) is devoted to a discussion of the patent laws with a view to extending to inventors protection comparable with that enjoyed by authors. The reviewer concludes that the causes for the wretched state of the sciences and the arts in England are mainly political; cf. *ibid.*, p. 341: "Enough, we trust, has been said to satisfy every lover of his country that the sciences and the arts of England are in a wretched state of depression, and that their decline is mainly owing to the ignorance and supineness of the government; to the injudicious organization of our scientific boards and institutions; to the indirect persecution of scientific and literary men by their exclusion from all the honours of the state; and to the unjust and oppressive tribute which the patent-law exacts from inventors. In a country which has so long derived its truest greatness from being the land of Newton, and which is now rendered illustrious over all the earth by one living star of its literature, can we look with indifference at this prostration of our intellectual strength?—can we behold unmoved the science of England, the vital principle of her arts, struggling for existence, the meek and unarmed victim of political strife?" The reason most commonly alleged for the decline in science is the lack of government support, and the humanistic sciences and the arts are usually associated with the natural sciences in their plight, except indeed when it is argued that their need is greater since the mathematical and physical sciences can count on encouragement from the government because of their intimate connection with navigation, the military art, manufactures, and commerce. Cf. James South, *Reply to a Letter in the "Morning Chronicle," Relative to the Interest Which the British Government Evinces in Astronomical Science* (London, 1829) and his *Charges against the President and Council of the Royal Society* (London, 1830); James Millengen, *On the State of Learning and the Fine Arts in England* (London, 1831); William Wilkins, *On the Patronage of the Arts by the English Government* (London, 1832). On the other hand, the reviewer in the *Quarterly Review* reports opposition to that argument for the need of public support of science as well as to the analogy of French science on which it is based; cf. *Quarterly Review*, XLV (April and July, 1831), 57–58: "Whenever the investigation of certain topics would be useful to the public service, but, from whatever cause, such investigation is not likely to be undertaken by individual members of the community, it is the clear duty of

quate on the standards of like works in France, Germany, or Italy, since the student would learn from it nothing of the discoveries of the last hundred years and would not be prepared to read the first six pages of Laplace's *Mécanique céleste*, should have had such favorable reception in England.

It is certainly a curious problem with respect to national genius, whence it arises, that the country in Europe most generally acknowledged to abound in men of strong intellect and sound judgment, should, for the last 70 or 80 years, have been inferior to so many of its neighbours in the cultivation of the science which requires the greatest and most steady exertions of the understanding; and that this relaxation should immediately follow the period when the greatest of all mathematical discoveries had been made in that same country.[20]

This judgment re-echoes the analysis which Playfair made of the state of English science in his review of Laplace's *Mécanique céleste* for the *Edinburgh Review* of 1808, where he complained that hardly a name from Great Britain appears in the list of the mathematicians to whom the science of astronomy for the last sixty or seventy years had been indebted for its improvements, and that, even apart from the question of ability to make original contributions, not more than a dozen men in all England and Scotland possessed the training requisite to read Laplace with tolerable facility.[21]

The introduction of Continental methods at the Scotch universities through the teaching of men like Playfair and at the University of Cambridge by Babbage, Herschel, and Peacock, as well as the influence of the British Association for the Advancement of Science founded in 1831, may have altered the state of science in England sufficiently to justify Bagehot's enthusiasm in 1872, but the changes can hardly be traced to alterations in political circumstances or conditions of free discussion, nor could the encouragement which British scientists received during the period of decline in British science from the attention of Continental scientists like D'Alembert, Clairault, and Euler be attributed to the democracy of the political regimes under which those scientists lived. The operation of freedom on thought is more complex both in the factors which make for the encouragement of science and in the factors in science which mark the stages

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government, acting as stewards or agents of the public, to employ the means placed in their hands for the advancement of such objects; but when the members of the community are themselves willing and competent to prosecute the inquiries, the interference of government would be not only useless, but hurtful. There cannot, they proceed, be a doubt that the philosophical pursuits to which the learned members of the French Institute devote their time, are highly beneficial to their country; or that the government of France does well to pension the savans, and to invest them with honours, that these able men may be stimulated to fresh inquiries. If science in that country were not kept up by the protecting hand of government, it would soon languish and die;—not because those accomplished philosophers, who are the admiration of Europe, are at all lukewarm in their pursuits, but because there is not, in the community at large, either a sufficient degree of taste for such things to render them generally fashionable, or enough of wealth to make them profitable. In England, they assure us, it is quite otherwise. There is not only a very extensive taste for every description of science diffused throughout our country, but there is ample wealth, always ready, upon the slightest hint, to support the expenses of such investigations. For government, therefore, to interfere in England with such things, would be like dashing with the oar to accelerate the cataract." Yet, according to an anonymous pamphlet signed "F.R.S." (probably Lieut. Col. William Martin Leake), *Thoughts on the Degradation of Science in England* (London, 1847), the low state of science and the indifference of the government were little changed in 1847.

[20] *Edinburgh Review*, XXVII (September–December, 1816), 98 (quoted by Merz, *op. cit.*, p. 235).

[21] *Edinburgh Review*, XI (October, 1807—January, 1808), 279–81 (quoted by Merz, *op. cit.*, pp. 231–32).

of advancement. At an earlier period in English science, when the influence of Newton seemed still strong, David Hume indicated the complexity as it turns on philosophy and the exact sciences by differentiating between philosophy and polite learning and relating the improvements in reason and philosophy to liberty and toleration in England. "So true it is," he said, "that however other nations may rival us in poetry, and excel us in some other agreeable arts, the improvements in reason and philosophy can only be owing to a land of toleration and liberty."[22] The arts and the sciences in general depend for their origin on free institutions, but freedom is enlarged from merely political implications to impinge on economic and other considerations, and mathematics and the natural sciences are not taken as the only, nor indeed the chief, sciences. Hume finds four general principles governing the rise of the arts and the sciences: first, "That it is impossible for the arts and sciences to arise, at first, among any people unless that people enjoy the blessing of a free government"; second, "That nothing is more favourable to the rise of politeness and learning, than a number of neighbouring and independent states, connected together by commerce and policy"; third, "That though the only proper Nursery of these noble plants be a free state; yet may they be transplanted into any government; and that a republic is most favourable to the growth of the sciences, a civilized monarchy to that of the polite arts"; and fourth, "That when the arts and sciences come to perfection in any state, from that moment they naturally, or rather necessarily decline, and seldom or never revive in that nation, where they formerly flourished."[23] The sciences envisaged in these considerations are enumerated and weighed by Hume in his elaboration of the third principle.

> A strong genius succeeds best in republics: A refined taste in monarchies. And consequently the sciences are the more natural growth of the one, and the polite arts of the other. Not to mention, that monarchies, receiving their chief stability from a superstitious reverence to priests and princes, have commonly abridged the liberty of reasoning, with regard to religion, and politics, and consequently metaphysics and morals. All these form the most considerable branches of science. Mathematics and natural philosophy, which only remain, are not half so valuable.[24]

[22] *A Treatise of Human Nature*, ed. L. A. Selby-Bigge (Oxford, 1896), Introduction, p. xxi.

[23] "Of the Rise and Progress of the Arts and Sciences," *Essays, Moral, Political, and Literary*, ed. T. H. Green and T. H. Grose (London, 1912), I, 177, 181, 184–85, and 195.

[24] *Ibid.*, p. 187. Cf. "Of Civil Liberty" (*Essays Moral, Political, and Literary*, I, 158–59), where Hume traces the argument "that the arts and sciences could never flourish, but in a free government," to Longinus and then refutes it by pointing out that it was based on only two ancient examples, Greece and Rome, and that it is contradicted by the more recent instances of modern Rome, Florence, Antwerp, Dresden, and finally France: "But the most eminent instance of the flourishing of learning in absolute governments, is that of France, which scarcely ever enjoyed any established liberty, and yet has carried the arts and sciences as near perfection as any other nation." Gibbon in the second chapter of the *Decline and Fall of the Roman Empire*, ed. J. B. Bury (London, 1904), I, 58, quotes the same passage in his discussion of the decline of genius and the corruption of taste under the Antonines. Longinus does not set this view forth as his own, but quotes it at third hand (*On the Sublime* xliv. 2), representing a "certain philosopher" as inquiring whether one should believe the hackneyed view that freedom and democracy foster intellectual genius and literary ability, or that letters are degraded because of the servility of the times. Longinus refutes that position and attributes the decline of letters to two causes: love of money and love of pleasure (*ibid.* 6). According to Hume, the argument of Longinus was repeated in England by Addison and Shaftesbury. Addison combines the two arguments opposed by Longinus, for in his analysis the pursuit of knowledge follows on the possession of riches and the interest in pleasure, and these in turn are the natural fruits of liberty (cf. *The Spectator*, No. 287: "Riches and plenty are the nat-

The implications suggested by more persistent analysis lead off thus in one direction to other forms of knowledge in which originality might be exercised and the results of freedom discerned in fashions suggestive of relations later found between science and democracy, and in another direction to the consideration of specific traits of science and freedom between which relations might be established.

The eighteenth-century reduction of the considerable branches of science to metaphysics and morals may make Hume's judgment about science seem irrelevant to present-day science and to the refinements of the problem of its relation to democracy. Yet the original connection between freedom (in the sense of absence of material or utilitarian needs) and wisdom (in the sense of speculation that ranges from myth to science) throws light on the puzzling paradoxes that are introduced when freedom is restricted to political freedom and science to natural science. In the broad senses of science and freedom, Aristotle called metaphysics the only free science.

> That it [*sc.* wisdom or metaphysics] is not a productive science is clear even from the first philosophers. For it is because of wonder that men began to philosophize at present and at first; in the beginning they wondered at common difficulties, then little by little they advanced and found difficulties in respect to greater matters, such as the changes of the moon, and those which occur in relation to the sun and the stars, and the generation of the universe. But a man who finds difficulties and who wonders thinks himself ignorant: therefore, even the lover of myth (φιλόμυθος) is in a manner a philosopher (φιλόσοφος), for the myth is composed of wonders; consequently, since they philosophized in order to avoid ignorance, it is clear that they were pursuing science in order to know and not for the sake of any utilitarian use. Moreover, the facts testify to this, for after almost all necessities and the things required for ease and recreation had been provided, this kind of wisdom began to be sought. It is clear, then, that we do not seek it for the sake of any other utility; but as we call a man free who exists for the sake of himself and not of another, so too this alone among the sciences is free, for it exists only for the sake of itself.[25]

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ural fruits of liberty, and where these abound, learning and all the Liberal Arts will immediately lift up their heads and flourish. As a man must have no slavish fears and apprehensions hanging upon his mind, who will indulge the flights of fancy or speculation, and push his researches into all the abstruse corners of truth, so it is necessary for him to have about him a competency of all the conveniences of life. The first thing every one looks after, is to provide himself with necessaries. This point will engross our thoughts 'till it be satisfied. If this is taken care of to our hands, we look for pleasures and amusements; and among a great number of idle people, there will be those whose pleasures will lie in reading and contemplation. There are these two great sources of knowledge, and as men grow wise they naturally love to communicate their discoveries; and others seeing the happiness of such a learned life, and improving by their conversation, emulate, imitate, and surpass one another, till a nation is filled with races of wise and understanding persons. Ease and plenty are therefore the great cherishers of knowledge: and as most of the despotick governments of the world have neither of them, they are naturally over-run with ignorance and barbarity"). Shaftesbury's argument is contained in his "Advice to an Author" (cf. *Characteristics of Men, Manners, Opinions, Times, etc.*, ed. J. M. Robertson [London, 1900], I, 144–56) and is concerned specifically with the relation of liberty and letters, although in typical eighteenth-century fashion Shaftesbury relates the arts to the virtues of mankind and distinguishes the sciences from the polite arts. Like Addison, he argues that the pursuit of "any curiosity of speculation" depends on leisure from the satisfaction of wants and common necessities (*ibid.*, pp. 153–54) and, like Longinus, he makes the arts depend on persuasion and rhetoric (*ibid.*, pp. 154–55).

[25] *Metaphysics* A. 2. 982^{b}11–28. The passage goes on to consider the argument that such knowledge is beyond human power, since human nature is in many ways in bondage. Cf. also *ibid.* 1. 981^{b}13–25, where the same problem is discussed in terms of the "discovery" or "invention" (various forms of the verb εὑρίσκειν are used in the passage) of the arts and sciences, those that aim at necessities and recreation as well as those which are not concerned with utilities. The origin of the mathematical arts in Egypt is traced to the leisure of the priests in that country. (The translation of Aristotle, as well as those of William of Tocco and Cicero, below, are by the author.)

The question of novelty and discovery in the sciences, of the origin of theories or branches of knowledge is made meaningless by ambiguities similar to those which attach to "freedom." Aristotle or Bacon are thought by some philosophers today, as they have been in the past, to have been originators who influenced the development of science and whose renewed influence might again be helpful; they are thought by other philosophers to have misunderstood their predecessors and to have impeded, when they have not been merely irrelevant to, the main lines of later scientific development. In the controversies concerning the "Renaissance" the beginnings of the rebirth are moved forward and backward over several centuries and its very existence is questioned, while the researches of men like Pierre Duhem have pushed the origins of modern scientific ideas back hundreds of years into the Middle Ages. Yet we seldom look for originality or the taste for it in periods which have been labeled authority-ridden, and therefore we seldom find evidence to shake our faith that men in the past were not free, and for like reasons we attain little insight into the freedom and originality we attribute to our own times.

It is neither easy nor safe to compare historical occurrences in different periods, but generalizations about occurrences have unmistakable family resemblances, and the events of the first half of the twentieth century might suggest a comparison of the grounds for the generalization that the medieval period was dominated by authority, fearful of innovation, and verbally minded with the historical foundations of the like generalization, latterly not frequently expressed though still strongly felt, that the contemporary world is tolerant, hospitable to change, and unconcerned with the niceties of semantic analysis and nominalistic theory. There is abundant evidence of great concern for novelty in the Middle Ages. The quality, thus, which attracted attention, favorable and unfavorable, to the speculations of Thomas Aquinas in the thirteenth and fourteenth centuries was their novelty, and his biographer's description of the reception of his teaching would stir the envy of modern innovators.

> He was constantly raising *new* questions in his interpretation, *discovering new* and clear ways of resolving them, and establishing *new* proofs in his resolutions of problems, so that no one who heard him teach *new* doctrines and solve difficulties by *new* reasons doubted that God had enlightened him with the rays of a *new* light, since he forthwith began to be so sure of his judgment that he did not hesitate to teach and write *new* opinions, which God had deigned *newly* to inspire.[26]

Once novelty is detected in an age, competent scholars can be cited for evidence of the freedom which is indissolubly connected with the development of knowledge and science.[27]

[26] William of Tocco, "Vita S. Thomas Aquinatis," *Acta sanctorum* (Paris, 1865), Martii tomus primus, p. 661: "Erat enim novos in sua lectione movens articulos, novum modum et clarum determinandi inveniens, et novas reducens in determinationibus rationes: ut nemo, qui ipsum audisset nova docere, et novis rationibus dubia definire, dubitaret, quod eum Deus novi luminis radiis illustrasset, qui statim tam certi coepisset esse judicii, ut non dubitaret novas opiniones docere et scribere, quas Deus dignatus esset noviter inspirare." (Italics mine.)

[27] In the specific case of the Middle Ages, thus, cf. M. de Wulf, *Philosophy and Civilization in the Middle Ages* (Princeton, 1922), p. 34: "The feudal sentiment *par excellence*, which is still so deeply embedded in our modern conscience is *the sentiment of the value and dignity of the individual man.* The feudal man lived as a free man; he was master of his own house; he sought his end in himself; he was—and this is a scholastic expression—*propter seipsum existens;* all feudal obligations were founded upon respect for personality and the given word." (The italics are De Wulf's.) Cf., also, J. T. McNeill, *Unitive Protestantism* (New York, 1930), pp. 89 and 92–94.

Such excursions into original or derivative senses of science and freedom, however, are less directly germane to the present-day form of the problem than the distinctions (derived, to be sure, from those broader shifts of meanings) by which natural science is rendered apparently dependent on, or apparently unrelated to, democracy. What Playfair criticized in the teaching of science in England was the neglect of recent new ideas and the absence of methods adapted to novelty. Mathematics was central to the program of studies at Cambridge, but it was taught without attention to the method of discovery.

> Mathematical learning is there the great object of study; but still we must disapprove of the method in which this object is pursued. A certain portion of the works of Newton, or of some other of the writers who treat of pure or mixt mathematics in the synthetic method, is described to the pupil, which the candidate for academical honours must study day and night. He must study it, not to learn the spirit of geometry, or to acquire the *δύναμις εὑρετική* by which the theorems were discovered, but to know them as a child does his catechism, by heart, so as to answer readily to certain interrogations. In all this, the invention finds no exercise; the student is confined within narrow limits; his curiosity is not aroused; the spirit of discovery is not awakened.[28]

The great achievement of Laplace, which Playfair lauds, was to have carried out systematically the implications of the theories which Newton had built on the materials assembled by earlier mathematicians.[29] Both the distinctions of scientific method and the description of national traits, if there is a unique relation between the development of science in England and certain of the methods of science, are suggested in Playfair's praise of Laplace and his criticism of British science. Bacon's philosophy received its most complete embodiment as method and classification of the sciences in the French *Encyclopédie*. The new ideas and principles of Newton were meticulously developed and applied by men like Clairault, Maupertius, D'Alembert, Lagrange, and Laplace, while English scientists, though neglecting the inferential and systematic consequences of the Newtonian physics, made their contributions by ingenious and detailed astronomical observations like those of Bradley and William Herschel. Locke was inspired both to the discovery of new propositions and to their demonstration by the example of Newton, which suggested his own efforts as an underlaborer engaged in clearing the ground a little for master-builders like Boyle, Sydenham, Huygenius, and Mr. Newton.[30]

> Mr. Newton, in his never enough to be admired book, has demonstrated several propositions, which are so many new truths, before unknown to the world, and are further advances in mathematical knowledge: but for the discovery of these, it was not the general maxims, "what is, is"; or, "the whole is bigger than a part," or the like, that helped him. These were not the clues that led him into the discovery of the truth and certainty of those propositions. Nor was it by them that he got the knowledge of those demonstrations. . . .[31]

[28] *Edinburgh Review*, XI (October, 1807—January, 1808), 283.

[29] *Ibid.*, pp. 277–78.

[30] *An Essay concerning Human Understanding*, "The Epistle to the Reader," ed. A. C. Fraser (Oxford, 1894), I, 14.

[31] *Ibid.*, Book IV, chap. vii (II, 279). In the case of his own doctrine he feared the effects of its novelty, since a new truth seldom carries it by vote, but he trusted to its truth; cf. *ibid.*, "The Epistle Dedicatory," I, 4: "The imputation of novelty is a terrible charge amongst those who judge of men's heads, as they do of their perukes, by the fashion, and can allow none to be right but the received doctrines. Truth scarce ever carried it by vote anywhere at its first appearance: new opinions are always suspected, and usually opposed, without

Locke's originality stimulated English philosophers to other original ideas, but his own ideas were developed on the Continent in a series of elaborations until at last his analysis of the human understanding was made the basis of a system of philosophy, psychology, arts, and moral sciences by Condillac. Yet the French philosophers who first developed the views of Bacon, Newton, and Locke lived under a form of government which has been described, along with less charitable designations, as a "despotism tempered by epigram," while their contemporaries in more democratic England were aroused after eighty or a hundred years to a sense that they had never participated significantly in the production of those original ideas which come from the labor of system and elaboration nor had they recently added to those original ideas which are stated in large inclusive theories.

The "scientific spirit" or a quality of thought favorable to the occurrence of new ideas is usually invoked to account for the influence of free discussion; the "scientific method" or the technique by which problems are solved and solutions are tested is thought to furnish checks to the dangers of free discussion. In discussions of the method of science both the relation of discovery to proof and the place of discovery in logic and scientific method have afforded theoretic formulation to the paradox of the requirements of novelty and truth in science. Invention and discovery may be opposed to verification and proof; or, if they are not distinct, proof may be assimilated to discovery in a new experimental logic opposed to a traditional logic which is said to be limited to sterile formal demonstration, or discovery may be assimilated to proof in a new symbolic logic opposed to a traditional logic which is said to set only vague conditions of verification in its generalizations about inquiry, induction, and deduction. The opposition between experimental logic and symbolic logic today is the last stage in a controversy concerning the possibility of a method of discovery, which is as old as the history of logic, and the stages of formulation of opposed theories reflect and influence the relations seen at the time between democracy and scientific method, for the paradox of their relations arises from the conflict of analogies between democracy and methods of discovery with the differences between democracy and the requirements of knowledge and strict proof.

The relation between the logic of discovery and democracy is, moreover, frequently dependent on a direct transference of method, for logicians have held either that there is no method of discovery, since rules cannot be formulated for the occurrence of new ideas, or that the method of discovery depends on a logic which science shares with the maneuvers of politics, the cross-questioning technique of the law courts, and the topics of the orator. In the nineteenth century, notwithstanding his elaboration of the canons of induction, Mill argued that discovery is not subject to rule and that the logic of induction, since it is a method of proof, has no place for discovery. "Success is here dependent on natural or acquired sagacity, aided by knowledge of the particular subject, and of the subjects allied to it. Invention, though it can be cultivated, can not be reduced to rule;

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other reason but because they are not already common. But truth, like gold, is not the less so for being newly brought out of the mine. It is trial and examination must give it price, and not any antique fashion; and though it be not yet current by the public stamp, yet it may, for all that, be as old as nature, and is certainly not the less genuine."

there is no science which will enable a man to bethink himself of that which will suit his purpose."[32] Whewell, likewise, notwithstanding his exposition of a philosophy of discovery and his fine display of freedom and originality in differing from Mill on almost every point of their voluminous discussion of scientific method, could nonetheless agree with him on that one point.

> The Conceptions by which Facts are bound together, are suggested by the sagacity of discoverers. This sagacity cannot be taught. It commonly succeeds by guessing; and this success seems to consist in framing several *tentative hypotheses* and selecting the right one. But a supply of appropriate hypotheses cannot be constructed by rule, nor without inventive talent.[33]

Bacon's logic of invention or discovery, which has been returned to good repute in the pragmatic logic of the twentieth century, was criticized in the nineteenth century for applying improper and inoperable legal methods to scientific problems in an effort to supply a method of invention from the techniques of law.[34] The relation is well grounded, for Bacon's inductive logic is based on his special-places or topics which he relates to and differentiates from the common-places of rhetoric. The complexity of the historical derivations of the logic of discovery may therefore be seen in Bacon's use of instruments derived from forensic oratory in his revolt against scholastic logic, which he represented as purely verbal and syllogistic, whereas the scholastic logicians in turn had learned from Boethius to repeat Cicero's distinction of logic into two parts, invention and judgment, and to find the great virtue of Aristotle in his discovery and development of the logic of invention.[35] The logic of discovery or invention, both in the Middle Ages and in the revolt of the Renaissance, derived not only its terminology and the orientation of its method but its application of utility as a criterion to science from the influence of Cicero's legal and rhetorical method. The Roman's philosophy in turn is a more simple practical adaptation of Aristotle's rhetoric and Socrates' cross-questioning elenchus, both of which have obvious derivations from legal procedure.

Statements of the dependence of science on democracy and free discussion go back ultimately to the problem of the nature of scientific method, since the relation alleged is between discovery and democracy. Yet it would be a gross oversimplification to suppose that free discussion in England stimulated new ideas,

[32] John Stuart Mill, *A System of Logic*, Book III, chap. 1, par. 2 (8th ed.; New York, 1893), p. 208.

[33] William Whewell, *Novum organum renovatum*, Book II, chap. iv (3d ed.; London, 1858), p. 59. Cf. also *ibid.*, chap. vi, par. 18, pp. 114–15.

[34] Cf. Augustus de Morgan, *A Budget of Paradoxes* (2d ed.; Chicago, 1915), I, 78–79: "The immortal Harvey who was *inventing*—we use the word in its old sense—the circulation of the blood, while Bacon was in the full flow of thought upon his system, may be trusted to say whether, when the system appeared, he found any likeness in it to his own processes, or what would have been any help to him, if he had waited for the *Novum Organum*. He said of Bacon, 'He writes philosophy like a Lord Chancellor.' . . . . We think it possible that Harvey might allude to the legal character of Bacon's notions: we can hardly conceive so acute a man, after seeing the manner of writer Bacon was, meaning only that he was a lawyer and had better stick to his business."

[35] Cf. Cicero *Topica* ii. 6. "Every exact method of discussion consists of two parts, one of discovering, the other of judging; in both methods Aristotle seems to me to have led the way. The Stoics, on the other hand, applied themselves only to the second, for they pursued carefully the ways of judging in the science which they call dialectic, but the art of discovery, which is called topic and which was more excellent in practical use and clearly prior in order of nature, they left completely aside. We, however, since there is the greatest utility in both and since we intend to treat both if we have the time, shall begin with that which is first."

at least for a time, but was insufficient to encourage, or was antagonistic to, their elaboration; while a different variety, or the absence, of free discussion in France and Germany led to the elaboration, extension, verification, and use of those new ideas. Nor is it plausible that the atmosphere of free discussion is favorable to the occurrence of new ideas, while the elaboration and development of theories is dependent on influential interest and liberal patronage, for great scientific ideas have had their origin under political conditions that could hardly be described as democratic, and democracies have not always appreciated or inspired scientists, while conversely democratic communities have found means to endow research institutes, and royal patronage has not always resulted in the opportunity for undisturbed scientific application. Viewed grossly, the examples of Athens, England, and the United States may be evidence of the stimulation of originality by free discussion and democracy, while Alexandria in the Hellenistic period and the Roman Empire of the time of Galen and Ptolemy, no less than the Nazi regime in the recent past, may suggest that at least the physical sciences and medicine may make progress in the solution of problems, in empirical investigation, and even in fundamental research, when the memory of free discussion is dim and the occasion for intellectual novelty in social questions is removed. Soviet Russia would seem from the present evidence to have made great advances in fundamental scientific research as well as in the extension of principles in application to things, in the integration of doctrines by the construction of systems, and in the adaptation of knowledge to the solution of pressing and practical problems, yet the very question whether, or the sense in which, democracy is to be found or is being prepared in Russia is involved in bitter partisan controversy.

All the evidence that bears on the dependence of science on democracy is ambiguous, and when the proper qualifications are introduced the question evaporates. The development of scientific societies and academies in the seventeenth century seems to indicate that corridors of free discussion adequate for the development of science may be cut across democracy and despotism. The same phenomena may be interpreted as evidence in support of the distinction between social and political democracy, since it is possible for a community of scientists, or of monks, to live democratically in undemocratic political surroundings. Finally, distinctions of time further resolve, or confuse, these ambiguities, for when interest in scientific developments precedes democracy, as it did in the France of Louis XV, it may be said to be a sign of the preparations for democracy; and when developments in the sciences occur after earlier freedoms and independence have been endangered or lost, as they did in Greece during the fourth and third centuries B.C., they may be said to be belated consequences of freedom. Or the state of the sciences and scientific problems may make them more or less amenable to social influences. Great original observations, applications of theory, and advances in experimental or speculative method have been made by men working in comparative isolation, by Lyell and Darwin, Galileo, Dalton, and Archimedes; yet the use of those original advances and discoveries has made the conducting of further experiments and the securing of further observational data more dependent on expensive apparatus, diversified knowledge, and co-

operative enterprise. The development of coherent scientific theories and syntheses has likewise been the work of individual scientists, of Aristotle and Newton, of Mendeleev and Einstein; yet the data on which they worked were assembled by many scientists, and at all stages of history the complexity of data no less than the absence of genius may raise synthesis beyond the powers of a single mind.

Assertion of the dependence of science on democracy would require, as a theoretic proposition, a great deal more analysis and factual inquiry than is now available for its substantiation. The sociological investigation of the characteristics of historical cultures in societies of advanced civilization is only at its beginnings, but preliminary studies have shown high correlations in the shifting configurations of cultures between advances in science and advances in the arts or in the achievement of any other nationalistic success,[36] while the relation of scientific method to democracy, even if democracy is sought in social phenomena and not limited to political forms, would be difficult to formulate in terms concrete enough to guide inquiry into historical or sociological data. Such a study must await the completion of another theoretic enterprise, the formulation of what is meant by scientific method. Much of what is written about scientific method is admonitory concerning the desirability of extending its use to fields in which it is not yet employed, for everyone is in favor of scientific method, but there is little insight into what is being praised except what the sagacious mind is able to perceive in the almost unanalyzed examples and works of scientists. Under the continued influence of the old paradox of proof and discovery two chief schools expound the logic of scientific method: one which may be designated the "accountant" theory in which the logician sets his ingenuity to discovering modes of expression and methods of verification more precise than the scientist needed in his original discovery and statement; and another which may be designated the "boy-scout" theory in which all men are invited to be scientific by being impartial, painstaking, and persistent, tentative in the entertainment of hypothesis, open-minded in bringing facts and doubts to the test of theories, and assiduous in seeking theories to assist in the understanding of facts. The one might conceivably be useful in the next step of science, but it is no more descriptive than many another method, epistemology, or metaphysics of what scientists do; the other might conceivably be an external picture of the operations of working scientists, but it is no more an aid in emulating their accomplishments than other information about their habits and hunches—how one got his directive ideas while running after busses, another while soaking his feet in cold water, a third while lying prone on his couch.

Fortunately the solution of the practical questions bearing on the dependence of science on democracy does not depend on the resolution of these tantalizing problems. The sense in which the opportunity for free discussion is an aid in any type of inquiry is clear; but political and social democracy are not in themselves sufficient to furnish the scientist opportunities for discussion: a broad interest in science itself is needed in the society in addition to that concern with the practical appurtenances and the material emoluments attached to some of its consequences, which supply the modern sub-

[36] Cf. A. L. Kroeber, *Configurations of Culture Growth* (Berkeley, 1944), pp. 210–11.

stitutes for the incentives of the legal profession in the eighteenth century; the disposition to inquire at each stage into the standards of what is being done in the name of science is needed to avoid slipping into that state which English scientists deprecated in the nineteenth century when scientists were abundant and authoritative but were also unaware of what scientists elsewhere had done better. We do ourselves little credit and we endanger the advantages that democratic institutions do possess by arrogating to democracy a blanket natural predisposition to science. The practical problem is rather to be certain that the conditions of our democracy are truly favorable to science, that fundamental research is in fact being encouraged and executed, and that the immense material resources and intellectual ingenuity that are available for the advancement of science are employed efficiently to that end.

III

If careful distinctions must be made in the meanings and relevant aspects of science before the statement that democracy fosters science has any testable historical foundation or practical application, similar ambiguities lie in the background of discussions concerning the influence of science on democracy. This second phase of the relation of science and democracy leads, like the first, to a merging of democracy with science. Like the tendency to identify the social conditions favorable to science with the conditions of democracy, the tendency to identify the knowledge acquired by means of science with the knowledge essential to democracy may take its start from obvious and literal truths. Those initial and basic truths, however, are each involved in paralogisms which are further confused by the ambiguities which result from their bearings, in valid original or ambiguous expanded form, on each other. First and most obviously, science has an influence on democracy, since political and social conditions are subject to scientific inquiry, and the definition and delineation of democracy are influenced by the results of inquiry and the application of theory. Since the time of the Greeks, efforts have been made to apply tested scientific methods to the study of society, and the paralogism in which this enterprise has eventuated arises from the effects of extending the methods of the natural sciences to social problems as opposed to the effects of delimiting the significance of scientific method by reference to social circumstances. Second, the development of the sciences, as well as the philosophies that have been influenced by science, have been activities which contributed to social ideals consistent with or essential to the attainment of the ideals of democracy, and the paralogism in which that harmony is involved results from the fact that progress toward those common ends has also involved science in conflicts with traditional ideals. This paralogism is recorded in the endless disputes concerning the conflict of science with tradition and religion. Third, science has afforded new instruments for the solution of social problems, but every such instrument may be, and has been, used also to the detriment of society and the peril of the common good. Finally, the technological developments which have been made possible by science have facilitated the solution of the problems of producing and distributing the materials requisite for subsistence, the satisfaction of basic needs, and the provision for comfort and a good life, but these possibilities have resulted primarily in

an opposition in acute form of claims in defense of the controls of government planning and of the incentives of free enterprise. In each of these forms of influence, science has affected democracy by modifying political theory, or social objectives, or available devices for group action, or potentialities and materials for social amelioration. But in each form of its influence, science has raised problems as well as solved them, and in particular it has made problems which had been debated in theory and philosophy imminent and concrete in social application. Moreover, each of these forms of influence complicates the problems raised by the other ways in which science has influenced democracy: questions of objective may be complicated by dispute about the definition of democracy; questions of means may be confused by questioning the propriety of the end to democracy or the accessibility of the materials; and questions of the nature of democracy run inevitably into questions of desirability, possibility, and availability.

The sciences depend for their production and development as organized bodies of knowledge on society, community, and communication; and in turn every kind of action, influence, or association depends for its success on some knowledge—notions derived from experience, precepts of art, or, more rarely, scientific generalizations—concerning means and ends, states of mind and probable effects and reactions, or at least material conditions and actual opinions. Since all activities including the pursuit of science are influenced and determined by political and social conditions, politics is an architectonic science. But since politics is itself a science, based on data, inferences, and principles, the examination of its grounds and nature, like the examination of the presuppositions of all sciences, falls outside the province of its own inquiries. The difference between the dependence of sciences on political circumstances and the dependence of political science on scientific principles is reflected in Aristotle's differentiation of wisdom from the art of politics,[37] for wisdom, which Aristotle treats in the book which was later called the *Metaphysics*, is an architectonic science of the principles of all the sciences, including politics and ethics, while politics is an architectonic science of the ends and conditions of actions within the state. The one is concerned with the interrelations of the kinds of knowledge—theoretic, practical, or productive—that depend on and follow from principles associated in one system of knowledge; the other is concerned with the interrelations of the kinds of activities—social action, artistic production, or scientific inquiry—that are directed to ends associated in one political unit at one time and place. The one is an investigation of the theoretic, the other of the practical, foundations of life and being, and that sharp differentiation of the theoretic from the practical sciences, of physics from politics, was in part at least, a reaction against Plato's identification of virtue with knowledge and his reduction, as it seemed to Aristotle, of all philosophy to mathematics. The influence of mathematics was one of the formative forces in the training of the guardians in Plato's Republic, while the kinds of science cultivated and taught in any state would, according to Aristotle's political theory, be determined by the nature and conditions of the state and be suited to its perpetuation and improvement.

In almost every age since antiquity, the strength of the case for democracy

[37] *Nicomachean Ethics* vi. 7. 1141ª16–ᵇ23.

has been affected by the application of scientific inquiry to political problems in both of these ways—by carrying the methods of the physical or mathematical sciences over to social problems and by reorienting scientific problems to a practical reference. While one philosopher seeks principles for moral and political actions, another philosopher seeks practical applications for all knowledge and science. In the eighteenth century, thus, Hume sought to introduce the experimental method of reasoning into moral subjects, while Kant undertook a Copernican revolution in knowledge in which the bases of even theoretic knowledge were to be found ultimately in practical reason. Both enterprises were inspired by advances in astronomy and ultimately by the example of Newton. Hume sought to effect a change in moral philosophy similar to that by which Newton turned from the proof of the true motions, order, and magnitude of the heavenly bodies, which had long occupied astronomers, to the determination of the laws and forces by which the revolutions of the heavenly bodies are governed or directed. Consequently, after distinguishing between two manners in which moral philosophy may be treated—a more abstruse manner in which man is considered in the light of a reasonable being as distinguished from an easier manner in which he is considered in the light of an active being—Hume chose the more abstruse, but found profit and pleasure in reformulating it to unite it with the easy species of philosophy.[38] Hume undertook the study of human nature in the expectation that a complete system of science and the ultimate principles of even mathematics, natural philosophy, and natural religion might be found in the science of man,[39] and that the true metaphysics, by which the false might be destroyed, would consist in the analysis of the powers and capacity of the human mind. On the basis of that analysis Hume concluded that physics and ethics are associated in their common dependence on cause and necessity. Knowledge in both is therefore only probable, whereas both are distinct from mathematics, which is concerned, not with causes, but with relations dependent on ideas alone, and certainty is therefore possible in mathematics.[40] Kant, on the other hand, was inspired by Newton's acceptance of hypotheses (like that of Copernicus) and principles of experience (like that of the equality of action and reaction) as a basis for discovering an invisible force or an a priori law which gives certainty to the previous hypothesis. Kant's inquiry into the a priori conditions of universal laws therefore depended on reorienting knowledge and things as Copernicus had reoriented the motions of the planets. The rule of the old queen, Metaphysics, had continued despite the efforts of Locke to question her claims by means of a physiology of the human understanding, until Kant himself engineered the Copernican revolution after which knowledge was not to be referred to objects and tested by conformity to them, but objects themselves were to be seen to conform to our mode of cognition.[41]

[38] *Enquiry concerning the Human Understanding*, Sec. I, 7–10, ed. L. A. Selby-Bigge (2d ed.; Oxford, 1902), pp. 12–14.

[39] *A Treatise of Human Nature*, Introduction, ed. L. A. Selby-Bigge (Oxford, 1896), pp. xix–xxii.

[40] *Ibid.*, Book I, Part III, secs. 1, 3, 14, and 15, pp. 69–73, 79, 171, and 175.

[41] *Critique of Pure Reason*, Preface to the 1st ed. and Preface to the 2d ed., trans. M. Müller (New York, 1919), pp. xvii–xix and 693–97. Cf. also *The Philosophy of Law*, trans. W. Hastie (Edinburgh, 1887), p. 15. In this reorientation theoretic or speculative reason is subordinated to

In the place of Hume's metaphysics based on the study of human nature, Kant's critical examination of human understanding prepared for two metaphysics—a metaphysics of nature and a metaphysics of morals. Natural philosophy is thus sharply distinct from moral, and the basis for the theoretic sciences is rediscovered by the critical philosophy in the principles of pure reason which possess objective reality, not in their theoretic but in their practical and more particularly in their moral employment.

Again in the recent past under the influence of later scientific developments the same opposition has recurred in efforts to reformulate a method for morals and the social sciences, and for the second time in one hundred and fifty years a science has been sought, not of human nature, but of values, and a Copernican revolution has been undertaken to reorient all knowledge, including the natural sciences, not to the forms of the human understanding, but to the social situation. On the one hand, semanticists and positivists who have examined the conformity of science to the facts of experience and the formal laws of the grammar of scientific statement find no comparable grounds for a science of morals or politics. Statements of value cannot be reduced to statements of fact, and the social sciences cannot be sciences in a strict sense, since they involve, if they are not based on, statements of preference, attitude, or belief. The talk, naturally enough, is no longer about a universal law like the principle of gravity but about relations and relativity, and the unity of science is sought not in the laws of human nature or thought but in the semantics or grammar of human expression. On the other hand, pragmatists and operationalists are preparing for a second Copernican revolution by which society will become the center of science.

> I do not know when knowledge will become naturalized in the life of society. But when it is fully acclimatized, its instrumental, as distinct from its monopolistic, role in approach to things of nature and society will be taken for granted without need for such arguments as I have been engaging in. Meantime, the development of the experimental method stands as a prophecy of the possibility of the accomplishment of this Copernican revolution.[42]

The natural and the social sciences may be brought closer together either by

practical reason; cf. *Kant's Critique of Practical Reason and Other Works on the Theory of Ethics*, Book II, chap. 2, par. 3, "Of the Primacy of Pure Practical Reason in Its Union with the Speculative Reason," trans. T. K. Abbott (6th ed.; London, 1927), p. 218: "Thus, when pure speculative and pure practical reason are combined in one cognition, the latter has the *primacy*, provided, namely, that this combination is not *contingent* and arbitrary, but founded *a priori* on reason itself and therefore *necessary*. . . . . Nor could we reverse the order, and require pure practical reason to be subordinate to the speculative, since all interest is ultimately practical, and even that of speculative reason is conditional, and it is only in the practical employment of reason that it is complete."

[42] John Dewey, *The Quest for Certainty: A Study of the Relation of Knowledge and Action* (New York, 1929), p. 298. Cf. *Reconstruction in Philosophy* (New York, 1920), p. 173: "When all is said and done in criticism of present social deficiencies, one may well wonder whether the root difficulty does not lie in the separation of natural and moral science. When physics, chemistry, biology, medicine, contribute to the detection of concrete human woes and to the development of plans for remedying them and relieving the human estate, they become moral; they become part of the apparatus of moral inquiry or science. The latter then loses its peculiar flavor of the didactic and pedantic; its ultra-moralistic and hortatory tone. It loses its thinness and shrillness as well as its vagueness. It gains agencies that are efficacious. But the gain is not confined to the side of moral science. Natural science loses its divorce from humanity; it becomes itself humanistic in quality. It is something to be pursued not in a technical and specialized way for what is called truth for its own sake, but with the sense of its social bearing, its intellectual indispensableness. It is technical only in the sense that it provides the technique of social and moral engineering."

seeking to apply the "methods" of the natural sciences to social phenomena or by recognizing that, since the eventual purpose of knowledge is the observation of a new phenomenon, the use of the laws of phenomena in pure science and their use in art are indistinguishable, for they are used, in both science and art, as ways of transacting business effectively with concrete existences. Theoretic and practical are amalgamated by both becoming instances of the operation of a productive art.[43]

Whether the relation of the social sciences to the natural and mathematical sciences is sought by applying the principles of other sciences to social problems or by orienting other sciences to the ends of action, the influence of scientific analysis on the concept of democracy may be seen both in the concept itself (and therefore in other concepts thought to be like or unlike it) and in the data pertinent to it (and therefore in other data thought to be like or unlike them). The principles of actions and associations may be sought either in potentialities and situations which determine appropriate ends or in the realizations toward which aspirations and hopes are directed. Aristotle sought the conditions of association in the peculiarities of particular societies and kinds of societies; Hume sought the first principles of government in opinions; recent semanticists and sociologists seek the bases of value judgments in preferences and feelings. Plato sought the ends of the state by reference to the eternal idea of the Good; Kant sought to regulate the will by the prescription of universal categorical imperatives; Dewey seeks to determine the means effective for the securing of desired ends. In either line of inquiry the methods and principles of the practical sciences or the social sciences may be distinguished from, or analogized to, those of natural science or mathematics or both. The effects of this variation may be seen both in the characteristics attributed to the sciences and in the pertinence of the principles or applications of the social sciences to democratic institutions.

The problem of the characteristics of the sciences as determined by the relation of the theoretic and practical is reflected in the discussion of the truth and probability of the sciences. Two tendencies are observable in the statement of the history of the sciences: one in which the various sciences have gradually approximated the precision and certainty of mathematics and physics, and another in which physics and mathematics have been brought gradually to conform to the uncertainties and probabilities of operations and actions. Even apart from the application of this tendency to the social sciences, its operation is recognizable in the relations of mathematics and physics. With the modern application of mathematics to physics the certainty of mathematics for a time endowed physics with certainty, and Newton could thus find the foundations of geometry in mechanics whose history is one of increasing accuracy.

> The ancients considered mechanics in a twofold respect; as rational, which proceeds accurately by demonstration, and practical. To practical mechanics all the manual arts belong, from which mechanics took its name. But as artificers do not work with perfect accuracy, it comes to pass that mechanics is so distinguished from geometry that what is perfectly accurate is called geometrical; what is less so, is called mechanical. However, the errors are not in the art, but in the artificers. He that works with less accuracy is an imperfect mechanic; and if any could work with perfect accuracy, he

[43] *The Quest for Certainty*, p. 207, and *Experience and Nature* (New York, 1929), pp. 357–58.

would be the most perfect mechanic of all, for the description of right lines and circles, upon which geometry is founded, belongs to mechanics. . . . . Therefore geometry is founded in mechanical practice, and is nothing but that part of universal mechanics which accurately proposes and demonstrates the art of measuring.[44]

Einstein, on the other hand, can argue with equal plausibility that the same process by which geometry has been applied to the things of experience has made it a physical science and has reduced its principles from certainty to probability.

One reason why mathematics enjoys special esteem above all other sciences, is that its laws are absolutely certain and indisputable, while those of all other sciences are to some extent debatable and in constant danger of being overthrown by newly discovered facts. . . . . At this point an enigma presents itself which in all ages has agitated inquiring minds. How can it be that mathematics, being after all a product of human thought which is independent of experience, is so admirably appropriate to the objects of reality? Is human reason, then, without experience, merely by taking thought, able to fathom the properties of real things? In my opinion the answer to this question is, briefly, this:—As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality.[45]

Whatever the decision induced by the analysis of pertinent data in this opposition, the language of the discussion is one familiar in the tradition of philosophers of science for whom every theory has an application and every practice a theory, and the fashion of relativity physics therefore has ready, though not always easily intelligible, influences on the social sciences.

The forms of certainty that are found in mathematics vary in their traits and the modes of their description, but in its various forms the certainty of mathematics furnishes the pattern for the search for like characteristics in social problems. If virtue is knowledge, as Plato argued, the dialectical discovery of truth and goodness will be the same; if the certainty of mathematics, physics, and metaphysics is dependent on the forms of the understanding, as Kant argued, the regulative rules of practical reason will not be certain in the same sense, although they will be universal and categorical prescriptions; if the peculiarity of mathematical principles is found in the manner of their expression, and their certainty, if they may be said to have any, is that of tautology, as symbolic logicians argue, the social sciences have not reached a state in which such formalized statement is practicable and their concern with values may make it impossible. There is, however, another tradition of philosophy in which the practical sciences are not measured by the standards of precision attainable in mathematics, and the modality of judgments in physics stands in this tradition somewhere between the precisions of mathematics and the probabilities of morals. Aristotle argued that the scientific treatment of moral and political problems cannot be as precise as the demonstrations of the physical and mathematical sciences because their subject matters—virtues and institutions—vary with circumstances and, like artificial objects in general, are not susceptible of the same exactness in definition as natural things or numbers and figures. Hume discovered an identical basis for moral and physical knowledge in necessity and causation, and the principles of physics were therefore seen to be only probable, while mathematics, at least in those branches which are in-

[44] *Mathematical Principles of Natural Philosophy and the System of the World*, Preface to the 1st ed., ed. F. Cajori (Berkeley, 1934), p. xvii.

[45] "Geometry and Experience," *Sidelights of Relativity* (London, 1922), pp. 27–28.

dependent of experience, continued certain. When the principles of science are sought in the mind, mathematics is preserved from relativity because it is not concerned with matters of fact, and the choice of principles in natural philosophy by virtue of their reference to sense experience is as much dependent on preferences as morals and aesthetics.

> Thus all probable reasoning is nothing but a species of sensation. 'Tis not solely in poetry and music, we must follow our taste and sentiment, but likewise in philosophy. When I am convinc'd of any principle, 'tis only an idea which strikes more strongly upon me. When I give the preference to one set of arguments above another, I do nothing but decide from my feeling concerning the superiority of their influence. Objects have no discoverable connexions together; nor is it from any other principle but custom operating upon the imagination, that we can draw any inference from the appearance of one to the existence of another.[46]

Mill, on the other hand, although his discovery of a scientific method for social science is dependent on the recognition that there are sciences which are not exact, sought the peculiarities of the fixed laws to which the phenomena of society conform in the phenomena themselves of human nature, "generated by the action of outward circumstances upon masses of human beings,"[47] and therefore rejected the analogy of the chemical or experimental and of the geometrical or abstract methods to find the peculiar method of social science, on the analogy of such sciences as astronomy and physiology, in the physical or concrete deductive method.[48] The followers of Dewey have carried Hume's limitation of certainties a step further and have taken the quest for certainty itself as a symptom of man, society, and the times to be explained, not by the nature of the subject matters or the form of the sciences, but by a psychological sense of insecurity from which scientists and philosophers suffer. Their opponents, on the other hand, explain the flight from certainty by a misunderstanding of the nature and methods of science on the part of social scientists and educators.[49]

The varying characteristics, of which the question of the certainty of the sciences is a symptom and sign, may give the social sciences a particular appropriateness to democracy or may make democracy assume a high or a low place among the values and institutions they treat. A tentative generalization might be ventured that, when the social sciences aspire only to probability, commitment to democracy is involved in some form in their principles, while, when certainty is sought in these sciences, democracy is brought in by consideration of imperfect actual circumstances. Aristotle thus lays the foundations of his politics by defining the citizen by his participation in the functions of government and admits that these foundations of his theory are best adapted to democracy;[50] yet the consideration of the best state in any particular instance is governed by the peculiarities of actual conditions and the standard that in the good state the good man is absolutely the same as the good citizen.[51] Plato found it necessary in the *Republic* to create a perfect state on the standard of wisdom and the idea of the Good in or-

[46] *A Treatise of Human Nature*, Book I, Part III, sec. viii, p. 103. Cf. also *An Enquiry concerning the Principle of Morals*, sec. iii, pp. 203–4.

[47] *A System of Logic*, Book VI, chap. vi, par. 2 (8th ed.; New York, 1893), p. 607.

[48] *Ibid.*, chaps. vii, viii, and ix, pp. 608–30.

[49] Cf. I. L. Kandel, *The Cult of Uncertainty* (New York, 1943), pp. 104–8.

[50] *Politics* iii. 1. $1275^{a}22$–$^{b}7$.

[51] *Ibid.* iv. 7. $1293^{b}5$–7.

der to define justice, and democracy stood among the degradations of that state. In the *Statesman* his dialectic moves to the differentiation of law-states from arbitrary states, and in that scale constitutional democracy is the third and worst of the law-states, while extreme democracy is the first and best of the arbitrary states. In the *Laws*, finally, he turns to the consideration of a second-best state as determined to actual conditions and available citizens, and finding virtues and defects in both monarchy and democracy—liberty is the blessing of democracy, and ignorance which pretends to be knowledge its curse, while monarchy tends to destroy liberty, but suggests, if it does not always mean, the rule of wisdom—he combines the qualities of both and sets up liberty, wisdom, and fraternity as the three things at which a state should aim.[52]

Hume sought the first principles of government in opinions of interest, power, and property,[53] and was therefore disposed, like Aristotle, to discuss the best varieties of the various forms of government.[54] Kant, on the other hand, sought the first principles of human association in a priori necessary moral laws;[55] yet the metaphysics of morals is concerned with the laws of freedom, and every true republic is and can only be constituted by a representative system of the people.[56] In the current phases of the opposition, principles of value and of the social sciences are sought either in logical and semantic formalizations of the proofs and language of the sciences to determine unambiguous meanings and conditions of verification or in operational and pragmatic reorientations of the sciences to establish concrete meanings and applications. Neither formulation yields an existent body of knowledge or an unambiguous method uniquely suited to the problems of democracy, but, as the problem shifts in the two formulations, each suggests interesting, though trivial, analogies between science and democracy. If principles are sought on the analogy of other sciences, similarities may be found between *democratic debate* and the tentative entertainment of ideas, equally valued, as hypotheses to be tried in experience; but the similarities are illusory since the grounds of decision are dissimilar. Indeed, it is doubtful whether ethics or the social sciences could be scientific in the sense required by the semantics of science, since value judgments have no subject matter in the sense of objects designated, and significances are dependent therefore on emotion, preference, or interest. If principles are sought on the analogy of the use of knowledge, similarities may be found between *democratic action* and the use of knowledge in engineering and the arts; but the similarities are once more illusory, since the nature of the knowledge required in the two cases is dissimilar. Moreover, the difficulty has shifted from the problem of the forms and references of language required by the logician or semanticist for statement and proof, in which there is uncertainty in identifying the subject matter, to the problem of the kind of knowledge required by the citizen for action, in which the uncertainty attaches to the nature and possibility of the knowledge. The problem of a democratically organized public, as Dewey points out, is essentially an intellectual

[52] *Laws* iii. 692D–696C.

[53] "Of the First Principles of Government," *Essays, Moral, Political, and Literary*, I, 110.

[54] "That Politics May Be Reduced to a Science," *ibid.*, p. 101.

[55] *The Philosophy of Law*, pp. 15–16.

[56] *Ibid.*, p. 210.

problem to a degree without parallel in the political problems of prior ages.[57] The treatment of democracies involves an idea of democracy or ideal democracy from which actual communities deviate. If the problem of democratic organization is approached on these assumptions by way of the public and the community rather than by way of the forms of government, the full consummation of democracy will depend on a kind of knowledge which is distinct from science and which will result from free social inquiry and will be shared in free effective communication.[58] Unfortunately, we have no example of such knowledge or specification of what it would be like. "The prime condition of a democratically organized public is a kind of knowledge and insight which does not yet exist. In its absence, it would be the height of absurdity to try to tell what it would be like if it existed."[59] The likeness of scientific hypothesis and democratic debate affords little practical guidance to the resolution of the debate, if no social proposition can be framed in a form sanctioned by scientific method; and the assurance that knowledge is essential to democracy throws little light on the nature of the problem or the knowledge in the absence both of example and of heuristic principle.

The possible influence of science on democracy is not exhausted, however, in the inquiries and proofs which might guide the formulation of social sciences or in the uses to which knowledge might be put in the furtherance of democratic ends. Science is itself a pursuit which may be in harmony or in conflict with other ends, and a second set of paralogisms is to be found in the history of the progress of science and culture and in the relation of the ends of science and those of other pursuits today. Both in inquiries into the recorded past and in debates concerning the projected future, accounts of knowledge have affected the bases of accepted values, and traditional beliefs have been taken as grounds for disapproving of the inquiries of science. The history of the conflict of science with customary values and with ends sought in human associations, and the present disputes concerning the possible bearing of the growth of science and technology on the alleged dissolution of moral and ideal values, are both illustrative of the fashion in which ends have grounds which may be affected by sciences pursued without concern with those ends and in which knowledge has ends which may be thought inconsistent with beliefs unrelated to the subject matter of sciences. The progress of science has raised questions which have unsettled traditional values, and it has inhibited the sanctions by which tradition might have protected them. Conversely, profession of forms of belief, attachment to values associated with amenities, rights, and privileges, and respect for commandments and taboos have hindered the full development and utilization of our knowledge and resources. The conflict among values and the dissolution of moral ideals have not been averted by science, but there is no evidence of either correlation or antipathy between scientific awareness, in individuals or groups, and moral sensitivity and acumen: morals are and have been in dissolution without the aid of science or rational reflection, and even casual conversation in an academic community concerning political issues is

[57] *The Public and Its Problems* (New York, 1927), p. 126: "The problem of a democratically organized public is primarily and essentially an intellectual problem, in a degree to which the political affairs of prior ages offer no parallel." Cf. *ibid.*, pp. 137, 157.

[58] *Ibid.*, pp. 163–65.

[59] *Ibid.*, p. 166.

sufficient to raise the suspicion that proficiency in science is not always transferred to other fields in traits of either moral attitude or analytical precision. The elaboration in the eighteenth century of English scientific ideas and the philosophic ideas constructed on their analogy contributed, it is true, to the motivations, theories, and shibboleths of the French Revolution; yet German philosophers and scientists were able, despite the failure of liberal reforms in their own country, to extend the ideas of English and French science, to reduce them to principles, and to contribute spectacularly to the advancement of science, in form and method as well as in matter, by devising experimental techniques and by exploiting the advantages of systematic formulation.

The desire to harmonize science and ideal ends may be expressed either in the form of programs, or more usually imprecations, to put science to work for the achievement of ideals specified by some other means than science or in the form of expectations that science properly developed will yield a new religion, a new community, and a new humanity. Both forms of expression are in the regions of the higher and less controllable rhetoric, and they result, when applied specifically to the ideals of democracy, in little improvement in the understanding of science or of the ideals of democracy and less prospect of practicable efficacy. The moralizing of science and the scientizing of morals are not related to each other in any simple opposition, for science and ideals may be on either side of the dispute. The moralizing of science may be presented as the control or restriction of science by subjecting it to some form of traditionalism or as the expansion and reform of science by giving it human application and significance. Past efforts in the name of religion are usually criticized in the first fashion; present efforts in the name of pragmatism are advocated in the second. In both forms of moralizing science, the judgment of science which leads to its restriction or extension in applications depends on first distinguishing social action from scientific law. Pragmatism, like religion, will humanize science by differentiating the operation of social and physical phenomena and by directing human activities, including scientific inquiry, to desirable ends.

> When men have an idea of how social agencies work and their consequences are wrought, they at once strive to secure consequences as far as desirable and to avert them if undesirable. These are facts of the most ordinary observation. But it is not often noted how fatal they are to the identification of social with physical uniformities. "Laws" of social life, when it is genuinely human, are like laws of engineering. If you want certain results, certain means must be found and employed.[60]

The difficulty is the same in both efforts: neither the fact that given ideals are traditional nor the fact that men conceive certain ends to be desirable is an adequate designation or test of ideals. The scientizing of morals, on the other hand, may be presented as an application of the techniques of biology or physics, psychology or psychotherapy, to moral and social data or as a search for the foundations and principles of morals and politics in a "science" of man or of God or of language. The difficulty is the same in both of these efforts: the moral and social sciences will not be rendered scientific by simple heterogeneous application to them of the methods of other sciences nor by certification of principles for them by sciences of other things. We can learn from the traditions of our democratic institutions means by which to

[60] *Ibid.*, pp. 196–97.

preserve those institutions and the ideals they embody, and we can learn from science means by which to modify the problems of democracy and contribute to their solution. Examination of tradition, however, should suggest lessons both in the diversity of philosophic and religious attitudes which were brought into operative relation in those institutions by the Founding Fathers, and in the frequency with which fidelity to religious tenets and moral ideals has led to uncompromising dogmatism rather than to attitudes and actions compatible with democratic methods and ideals. Adherence to the scientific method should likewise suggest the need of analysis and empirical tests of facile analogies from natural sciences to the actions and ends of man as well as the need of care in examining and applying current and traditional generalizations concerning scientific method.

The instruments which science has afforded for the solution of political problems have even less direct or unique pertinence to the processes and ideals of democracy than can be found to relate the ends of science and democracy, and the third set of paralogisms works changes on the platitudes that science is a powerful instrument for the good and that science and the products of science may be put as efficiently to evil as to good uses. The immediate application which is made of knowledge is frequently destructive and perverted, and in times of disorder and war the ultimate achievement of ends, good as well as bad, is dependent more on violent than on rational means. The authoritarian and feudal state could, even in the beginning, make use of the instruments of science and technology,[61] and dictators eventually could argue that authoritarianism is necessary for the efficient use of science as an instrument to social ends, since the alternative of laissez faire was indecisive and costly, and that fascism is essential to the establishment of a truly democratic society, since democracy consists in an order in which every man performs his proper function. The advances of science have supplied instruments to dictatorships and democracies, and they have created difficulties for both, since both are bound by commitments to tradition. Modern criticisms of democracy or applications of democratic institutions, no less than defenses of democracy, have therefore sought grounds in the sciences or the uses of sciences. It is alleged that democracy does not provide the direction and organization adequate to deal with the problems of a technological civilization or to make efficient use of the devices of science in the solution of those problems. It is alleged, in arguments that reappear in many forms, that democracy runs counter to the principles set down or the methods used in sciences and pseudo-sciences which purport to treat of the nature of man or the regions of the world or the order of society. The first set of criticisms is reflected in our own discussions of the use and danger of experts, administrative agencies, and bureaucracy, as well as in the simplifications and analogies by which democracy is carried from political to other forms of association: social organizations, in-

[61] Cf. Charles E. Merriam, *Political Power: Its Composition and Incidence* (New York, 1934), pp. 147–48: "This period [of growth of science and technology] coincided with the advent of the theory of laissez faire in many states, and in others the older standards of feudalism survived and made adjustment difficult. Only in Prussia was there made of the feudal state something approaching a modern scientific organization through the union of elements, administrative, industrial, scientific, under auspices somewhat patrimonial in nature."

dustrial corporations, labor unions, research foundations, educational institutions. The second set of criticisms is reflected in our confidence that democracy is founded in the very nature of man and our certainty concerning any principles of science or pseudo-science suited to justify that confidence.

The contributions of science to the materials of subsistence and life are susceptible of clearer statement than its effects on the forms, ends, or means of democratic association, and the fourth set of paralogisms, therefore, threatens to reduce all the problems of democracy to economic terms and to questions of property and distribution. The familiar form of these paralogisms in recent discussions depends on the opposition and relation of individual and group, the advantages of government planning as opposed to the advantages of free enterprise, the analogies of communism seen in federal projects and promotion as opposed to the preparations for fascism seen in the monopolistic tendencies and corrupt politics of big business pursued in the guise of free or private enterprise. The earlier forms of the same paralogisms depended on the opposition and relation of the needs of men and their contributions to society, of the rights of men to property (possession of which would lead to virtue) as opposed to the virtues of men (exercise of which would be rewarded by the possession of property). Thinkers as different as Thomas Paine and John Adams, early in the history of the American republic, argued that the possession of property was indissolubly connected with the development and exercise of democratic virtues. Adams based his judgment and the foundations of democracy on a principle discovered by Harrington—that "empire follows the balance of property"—which he ranked among the greatest discoveries of scientists and inventors.[62] Theories which base speculation concerning political forms and individual virtues on considerations of ownership of property and the instruments of production have changed in form as a consequence of the influence of science: the principles of such theories are still advanced as scientific, but the developments of technology have enriched the materials of their argument by vast increases in economic goods and in the facilities for the production of even vaster abundances. Classless societies and nonpolitical societies will result when we develop for the solution of changed economic problems sciences and knowledge such as we do not yet possess.[63] The paralogism still runs be-

[62] For Paine and Adams cf. R. McKeon, "The Development of the Concept of Property in Political Philosophy: A Study of the Background of the Constitution," *Ethics*, XLVIII (1938), 354–58. In 1865 Georges Clemenceau, touring the South to observe the effects of the Civil War, gave a similar answer to the argument advanced by a southern planter that the Negroes were unsuited for the exercise of freedom: "Une loi, un article de Constitution ne donnent pas la liberté. Le malheur de la race noire est qu'elle ne possède pas de propriété. Ce n'est qu'en y accédant petit à petit et si vous lui en donnez le moyen qu'elle pourra parvenir à la liberté sociale, car un homme qui ne possède rien n'est pas libre" (Alain Coville, "Georges Clemenceau aux Etats-Unis," *Pour la victoire*, 18 Juillet 1942, p. 10).

[63] Karl Mannheim, *Ideology and Utopia: An Introduction to the Sociology of Knowledge* (New York, 1936), pp. 33–34: "The result of this amalgamation of politics and scientific thought was that gradually every type of politics, at least in the forms in which it offered itself for acceptance, was given a scientific tinge and every type of scientific attitude in its turn came to bear a political colouration. . . . . The principal liability, however, in this direct connection between theory and politics lies in the fact that while knowledge always has to retain its experimental character if it wishes to do justice to new sets of facts, thinking which is dominated by a political attitude can not allow itself to be continuously readapted to new experiences. . . . . The other danger which arises from this alliance between science and politics is that the crises affecting political thinking also become crises

tween needs and virtues in our common discussions: in an economy of abundance it is urged that the problem is primarily one of distribution and providing social services and security, while conversely it is argued that prosperity, employment, self-respect, and justice can be preservd only if the material rewards of initiative are sufficient to encourage free enterprise.

These four paralogisms are no mere verbal jugglery to be removed by a simple semantics of verbal definition. Whatever bearing science is supposed to have on democracy, such paralogisms are at the center of the discussion, modifying the concepts associated with both science and democracy in such fashion that democracy seems to approximate science, even though one conception of democracy is opposed to another and science is opposed to science. In the samples of the first set of paralogisms the forms of science and of democracy seem similar, though both are involved in dispute. Democracy may become more scientific if science involves no pretense to certainty (since the quest for certainty has no foundation except the insecurity of the scientist) or if democracy involves no pretense to abstract standards of value (since development of science and democracy is determined by the practical ends of the community). But, conversely, democracy cannot be scientific if moral and political sciences must be based on propositions which are not empirically verifiable and if the language of science must be differentiated from the language of ordinary communication. In the samples of the second set of paralogisms the ends rather than the methods and languages of science and democracy are approximated or separated. The ends of both are based in the potentialities of the present and yet are not uniquely determined by the present and the actual. Democracy can therefore be scientific if knowledge of ends can be based on empirical knowledge of what is the case (but if ends are determined thus by experts, they will be in conflict with democratically conceived ends) or if criteria of action can be devised to determine whether a desired end is an end that ought to be desired (but if propositions concerning ends are verified in a different fashion than statements of fact, they will be in conflict with empirical scientific techniques). In the samples of the third set of paralogisms the use of scientific means to democratic ends could be presented as dependent on a unique relation between science and democracy only if a sense of social purpose be preached and attached effectively to science or if a form of social knowledge that does not yet exist be achieved for democracy. All these forms of paralogisms, however, are discussed most frequently in terms of the fourth set of paralogisms: the material contributions of science to the forms of democracy. In this formulation they assume their most perplexing form, for kinds of knowledge, ends, and means are all submerged in the materials of the problem, and the discussion proceeds not only as if economic problems could be solved apart from these related problems but as if the solution of the problems of material existence would consti-

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of scientific thought." Mannheim's solution, like many other modern analyses of social problems, depends on a theory of historical development in which there is gradually developed a form of knowledge of the factors which determine our actions unconsciously and irrationally and by that knowledge we will be freed from irrationality, so that apparently politics as politics will disappear at the same time and as a result of the same processes as made a truly scientific politics possible (cf. *ibid.*, pp. 170–71). True freedom emerges from the realm of subjective freedom and necessity in the dialectics of Hegel and Marx by very similar devices.

tute the solution of all problems. The paralogisms involved in the responsibilities of government and the possibilities of free enterprise presume answers to all the other problems and assume definitions of all the terms required in those answers. It is precisely in questions of this sort that the uncertainties of science and the need of action mark the sharp difference between scientific method and democratic process. The means for arriving at agreement concerning practical problems are to be found, not in the tempting analogies of scientific method and democratic process, but in the rigorous differentiation between them.

IV

The relation of scientific method and democratic process is rendered a question of obscure significance and partisan application by unstated assumptions concerning the influence of democracy on science and the influence of science on democracy. It is a matter of no dispute that science, like all other human activities, is influenced and crucially determined in its development by the social and political environment under which scientific inquiry and demonstration are undertaken. To assume, however, that democracy possesses characteristics which relate it uniquely among political and social institutions to the pursuit of science is to prejudge in a most unscientific manner the problems of defining terms, analyzing the nature of "scientific" and "democratic" processes, and examining data—psychological, sociological, historical. It is possible that we shall discover, when such inquiries are completed, that democracy is peculiarly favorable to the development of science in some determinate sense, and possibly, on the basis of data made available by such inquiry, a causal relation will be found between the psychological traits or sociological configurations which stimulate scientific observation and inference and those which are favorable to the growth of democratic discussion and decision. Fortunately, the practical question of whether or not fundamental research in science has been and is encouraged effectively in, say, the United States or England, need not depend on the solution of those psychological, sociological, and historical problems.[44] democracy in its various forms and operations may be favorable or inimical to any pursuit, and the practical problem is, having avoided the assumption that, being democratic, we are therefore scientific, to set up within the democratic frame circumstances favorable to the development of science.

It is similarly no matter of dispute that democracy, like all other planned associations, depends on knowledge and that science has modified not only the materials of democracy and the instruments at its disposal but also the view of its accessible ends and purposes. It would even be intelligible to say, in the broad sense that has been given to the

[44] Shortly after the outbreak of the war in Europe, Raymond B. Fosdick, president of the Rockefeller Foundation, reviewed the state of science and the activities of the Foundation, emphasizing the international character of scientific research and the impossibility of localizing or nationalizing the creative spirit of man. He urged America to be humble about the question of intellectual leadership, listing fields in which we must look to Europe for leadership, and it is pertinent to the question of the influence of political circumstance on scientific discovery that he reported as "the most dramatic scientific development of the year 1939" the splitting of the atom of the heavy element uranium and its transmutation into barium and eight other elements by Hahn and Strassmann of Berlin, which in turn was made possible by results obtained by Fermi in Italy in 1934 (*The Rockefeller Foundation: A Review for 1939* [New York, 1940], pp. 14–15).

word, that there is, or might be, a "scientific" basis for democracy. To assume, however, that science possesses characteristics which relate it uniquely to democratic methods of discussing problems and reaching agreements is to confuse in a most undemocratic manner the freedom which comes from the removal of external control with the freedom which comes from the acquisition of knowledge. It is possible that a happy day will come in which the citizens of democracies will possess knowledge and wisdom that would put the guardians of Plato's *Republic* to shame, and it is probable that such democracies would be on most solid political and social foundations, except for the danger that fidelity to scientific "truths" outrun sensitivity for democratic rights. Unfortunately, the practical problem of bringing the benefits of scientific advance to full bearing on the solution of social problems is involved in a dilemma as old as Socrates' puzzlement over the fact that a slave boy could be taught mathematics easily while the sons of Pericles failed to learn virtue. The modern form of the dilemma is that democracies will survive in the complex world of modern science only if a considerable proportion of democratic decisions are as right as science can make them; but decisions in a democracy are not right, whatever their truth on objective scientific grounds, unless they are also freely arrived at.

The practical significance of the question of the relation of scientific method and democratic process does not depend on theoretic questions concerning the relation of state of mind or of society to the use of scientific method or the relation of science to the subject matter or forms of social problems. The question is not rendered practical, moreover, by making both science and politics arts, and discovering similarities of feeling tones in democratic discussion and exchange of views to those associated with scientific methods of experimental inquiry and test. Knowledge and its acquisition, transmission, estimation, and use enter into the functions of democratic associations in a fashion which brings out sharp differences between democratic process and scientific method, and these practical differences will not be affected by further developments of theory or analogy. The practical question of the pertinence of science to the problems of democracy, whether it be stated in terms of the forms of government, as it was in the eighteenth century, or in terms of the organization of a society and a public, as has been customary more recently, turns on the kind of knowledge which is necessary to the constitution and continuation of a democracy and the respects in which it is useful to liken it to or distinguish it from scientific knowledge. So stated, the question suggests the need to distinguish four separate questions which are merged in the facile correlations of democracy and science.

The relation of scientific method to democracy leads first and most obviously to the question of the possibility and nature of political and social sciences suited to treat of the forms and ends of democratic association. This question is involved in ambiguities because the double influence of social environment on the development of science and of science on the development of democracy makes the redefinition of both terms a tempting device for solving a dilemma. For if science is certain, democracy is unscientific; and if democracy sanctions the statement and defense of unverifiable opinions, science is undemocratic. In the theoretic formulation of the problem the relation between democracy and science could be

made closer either by holding to the standards of science and altering those of the social sciences, or by altering the standards and orientation of science and providing the citizen with a kind of knowledge which he does not now possess. The difficulty which the positivist finds with moral and social sciences lies in their formalization and language, while the difficulty which the instrumentalist finds with sciences lies in their quest for certainty and their neglect of their social circumstances and significances. Both the statement of the difference between problems of knowledge and problems of action and the statement of their identity are varieties of inverted Platonism, inasmuch as the one differentiates science and object, not by means of eternal Ideas and the changing things or symbols that imitate them, but by means of rules governing the use of symbols and the changing things which are symbolized, while the other approximates science and action, not by means of the tenet that virtue is knowledge, but by means of the operationalist creed that knowledge is action or the possibility of action.

The practical consequences of this theoretical controversy concerning the nature of science and of the social sciences may afford some guidance for its resolution. Pragmatists and positivists agree that, whatever methods are proper to the treatment of social and political problems, they are in some fashion different from those of the natural sciences. But the problems of scientific method in the social sciences and of the relation of theory to practice are given two distinct formulations in these theoretical disputes. In the one the question turns on methods of inquiry and on the applicability of the methods of the natural sciences to social matters and problems. In the other the question turns on methods of action and the orientation of the sciences to the solution of problems in social contexts and determinations. Democratic institutions and modes of life, however, afford among the data studied by the social sciences a subject matter which is pertinent to the determination of methods of inquiry, and as institutions and ways of life they embody methods of resolving problems which are pertinent to the general question of method of action. As method of inquiry an examination of ends and of propositions that are true about preferences or deliberations may properly be said to be a "scientific method" of discovery and verification, provided means are found for treating value judgments, and in that respect it is distinguished from the methods of the natural and theoretic sciences. As method of practical action it may properly be said to be a "scientific method" of securing ends, provided criteria are found for the judgment of ends, and in that respect it is distinguished from the method of engineering. The method of the natural sciences has been formulated in a variety of ways, each pertinent to the investigation of the nature and behavior of things, including the powers and actions of man: it has been viewed as a method concerned with the fixed natures of things, the kinds and causes of motion, the laws and uniformities of change, or the correlations of events. Scientific method conceived in any of these ways, would not be suited to the examination of the activities and institutions of man relative to desirable ends and available means. For the bases, modes, and motives of man's activities are determined and explained not only by his nature but also by the influence of learning, habituation, and circumstances, among which are prominent the institutions and influ-

ences of society and the state. Social and political institutions and associations, conversely, are determined and explained not only by their forms, regulations, and histories but also by the preferences and insights of individual members, the resources available and the means of utilizing them, and the activities of the lesser associations which make up a complex society. Moreover, since the uniformities observed in society are not the same in nature, and cannot be expressed in the same analytical terms, as the uniformities expressed in the law of nature, knowledge of the operations of social agencies will neither afford the kind of control that results from like knowledge in engineering nor be adequate for the determination of directions since the ends of society are not determined, like the ends of engineering constructions, by another art. As applied to the problems of democracy, scientific method in political and social philosophy must avoid two extremes of danger: on the one hand, the danger of using methods borrowed from the natural sciences to set up a "scientific" treatment of social problems by prediction and control in which free decision becomes a factor of probability or an element to be regulated by propaganda or force rather than the motive and basis of the resolution of problems and, on the other hand, the danger of using analogies from engineering devices for securing desired ends to set up methods of practical activity in which, since ends and values fall outside the scope of inquiry, that which is preferred or that which is desired is accepted uncritically as the good.

Political and social philosophy make scientific methods available for the solution of practical problems, but they are not unique or sufficient means in a democracy, for it is not a tenet of democracy that all citizens must be social scientists nor that they must acquiesce in a decision because it is well grounded or wise. Therefore, the question of the relation of scientific method to democratic processes must be formulated in a second fashion to cover not only the problems involved in the scientific analysis of democratic ends and means but also the problems involved in securing ends by democratic means. There is a utopian tendency, inherited from the discussions of other perfect societies and governments, to discuss democracy in putative ideal and perfect forms, in which the citizen may be presumed to have knowledge and virtue and in which the action of the citizen would be indistinguishable from the analysis of the scientist. In actual democracies, whether they be considered steps on the way to that ideal or divergencies from it, the citizen retains his civic rights whatever his lapses, within the law, from informed intelligence or strict moral probity. In recognition of this difference between the bases of action and the sciences by which they are known and evaluated, the writers of the *Federalist* papers, notwithstanding their high opinion of the contribution which the science of politics had made to the cause of republican government,[65] and their insistence that the first principles of ethics and politics, which they were fond of enumerating, are of the same nature as the maxims of geometry,[66] were careful to base government on opinion, not knowledge.

> If it be true that all governments rest on opinion, it is no less true that the strength of opinion in each individual, and its practical influence on his conduct, depend much on the number which he supposes to have entertained

[65] *The Federalist*, ed. E. M. Earle (New York, 1937), No. 10, p. 48.

[66] *Ibid.*, No. 31, p. 188.

the same opinion. The reason of man, like man himself, is timid and cautious when left alone, and acquires firmness and confidence in proportion to the number with which it is associated. When the examples which fortify opinion are *ancient* as well as *numerous*, they are known to have a double effect. In a nation of philosophers, this consideration ought to be disregarded. A reverence for the laws would be sufficiently inculcated by the voice of enlightened reason. But a nation of philosophers is as little to be expected as the philosophical race of kings wished for by Plato. And in every other nation, the most rational government will not find it a superfluous advantage to have the prejudices of the community on its side.[67]

The formation of public opinion depends on prejudice, emotions, subconscious influences, factional interests, and expected benefits as well as on occasional explicitly rational influences; and although these other factors are subject to analysis, and even to scientific inquiry, the employment of such scientific devices by agencies of government for the formation of opinion is dangerous to the ends of democracy and without justification on scientific grounds. This is the region of freedom, of free communication, free judgment, free belief. It should be hedged in only two ways: first and ordinarily, by the devices of persuasion, including those of scientific argumentation and the democratic means of coming to agreement, and, second and exceptionally, by the devices of scientific control when required for therapeutic or police reasons.

It is conceivable that in a community of scientists who have achieved universality in their competence, no need would arise for knowledge other than science, and the laws of action would approximate those of the natural sciences, inasmuch as free decisions would be made in the light of all the facts. Even in that perfect state, however, the uniformities of social action would have to be distinguished from the regularities of natural change, and the "scientific method" of the practical sciences would be distinguishable in its application to the achieving of social ends from the "scientific method" of the natural sciences. Short of a utopia, in actual democracies, moreover, both of these methods of solving problems by expert recourse to the nature of things and to the actions of men are distinct from the method of free communication by which public opinion and common knowledge are built up in society and in the free communities which compose it. Common opinion and knowledge involve problems of education and inquiry in the broad senses in which the development of any human potentiality and the search for any ideal bear upon the community life of a democracy. They entail rights which cannot be curtailed, even when practice falls short of ideals thought to be higher or purer on religious or scientific evidence, without grave danger to the democracy. They involve interrelations of interests and activities which are made the subject of theoretic investigation, and which are restated variously in theories as the forces which give an age its character in the dialectic of history, or the fashions in which social circumstances unify expressions and departments of thought in the sociology of knowledge, or the conceptions of man which are the basis of evolution in *Geistesgeschichte*. They may be studied by the scientific methods of the social sciences, and the use of scientific method removes some, and gives rise to others, of the problems involved in the characteristic thought of a community. Social problems, however, even those which bear on the use of science or its consequences, are not conceived or solved by the members of society by use

[67] *Ibid.*, No. 49, p. 329.

of devices of scientific inquiry; nor are they resolved by philosophic speculation in spite of the fact that many opposed philosophic positions may be detected in the convictions held in a society. The social and political uses of the discoveries made and the conclusions demonstrated by means of the scientific method are not themselves applications or extensions of that method, whatever the conception of scientific method. The revolutionary effects of science and of the consequences of science on the formation of public opinion and the body of broadly available knowledge are present in society, recognized, and applied without appeal to scientific method. The automobile and the theory of relativity have both had profound effects on our social problems, but the average traveler has not become more "scientific" by stepping on an accelerator nor the average semanticist by talking about space-time. Neither the changes in science and their effects nor the knowledge in which the doctrines and applications of science become socially effective are themselves science or scientific. They are concerned neither with the operation of things in relation to other things nor with the operation of actions toward ends but with the operation of opinions and states of mind on other opinions and states of mind. They are distinct in spite of the fact that, in the ideal democracy, states of mind would probably be caused only by what is the case, and free communication might employ only the methods of the natural and the social sciences.

This differentiation of the scientific method by which a competent inquirer investigates problems and tests conclusions and the democratic process by which any individual is empowered to determine freely what he conceives to be true and important serves to avoid those new forms of obscurantism, authoritarianism, and mysticism which are substituted as guides to action for science and democracy by laying claim to the credentials of both. Participation in a democratic community is not dependent on the inculcation or enforcement of identical philosophic, religious, or scientific views throughout the community: on the contrary, the ends of democratic association are secured rather than endangered by the opportunity for doctrinal divergence on all these subjects. The value of scientific inquiry is not dependent at any moment on the interest or approval of the community nor even on consensus among scientists; on the contrary, new directions and novel principles must always be advanced against prevailing fashions and frequently in the face of uninformed and persistent opposition by scientists. The fate of scientific method is closely associated, as instrument to be employed and as end to be achieved, with that of democracy; but the one can continue to be a support to the other only so long as that relation is not made an identity, for the privilege of differing in doctrine which is essential to free inquiry can be preserved only if the community of interests represented by the state is not itself made in each action a matter of doctrinal demonstration and individual conviction. The advances of science may be used in a democracy without supposing that the problems of democracy are therefore solved scientifically, and appeal can be made to the experts in matters of scientific dispute without supposing that consensus of the experts is a necessary mark of adequacy or truth.

The scientific solution of problems in a democracy and the democratic control of judgments in a science are both, strictly, contradictions in terms. The pre-

sumption in both social and scientific problems is that some solutions are better than others. The function of scientific method is to ascertain preferable solutions by the discovery and proof of true or probable conclusions, and incidentally scientific method provides instruments for the criticism and refutation of other and contradictory doctrines which are also presented as true or probable. The function of democratic processes is to ascertain preferable solutions by ultimate recourse to the will of the majority, and incidentally democratic processes provide means of removing differences and of coming to agreement concerning what is preferable. All men, no doubt, should acquiesce in the truth; but in the absence of such ideal and voluntary unanimity, tolerance of one's own views short of acceptance by others is humanly preferable to an alien imposed truth. Therefore, the frame of a political constitution which provides the means of resolving differences without need of referring every problem to alleged scientific, religious, or philosophic principles affords protection for all the variety of socially tenable convictions and for the activities which contribute to the good life: the amenities of social intercourse, the cultivation of the arts, the expressions of piety and the cultivation of spiritual ideals, the examination and construction of philosophic doctrines, and, among these and numerous other activities, the use of scientific method and the pursuit of science. And, conversely, the decision of political problems by the vote of a majority will continue to constitute an effective solution, chance and the will of God apart, in the degree that knowledge and good will are furthered among men and are made effective by the family, the school, the church, the trade-union, by press, radio, literature, art, science, philosophy, and by the other social institutions and devices which form the opinion and communicate the knowledge reflected in democratic deliberations elections, and decisions.[68]

The scientific method by which the problems and operations of democracy are analyzed by social scientists and the dialectical method by which convictions and activities, including those involved in the use of scientific method, influence each other and are in turn studied by historians and sociologists, are both distinguishable from the method by which problems are resolved and agreements are arrived at in democracies. The question of the relation of scientific method to democratic processes must therefore be formulated in a third fashion to separate the operation of those processes of coming to agreement from the scientific analysis, which is sometimes a causal factor in them, and from the convictions opinions, and ideals, which are the materials and in some cases the scientific foundations on which those processes work. The freedoms of conscience, thought, expression, and action have influenced each other, and the assertion of one has led in the history of their development to concern for the others. Each of these freedoms, however, has its social consequences and implications, and therefore the free pursuit of science, philosophy, art, and religion by individuals leads to efforts of communication

[68] The operation of scientific inquiry within a democratic community brings it into contact with tradition, religion, and the pursuit of many ends which fall within the freedom of the citizen and which contribute to forming the character of the community and the materials and background of its decisions. For the impact of some of these related and opposed forces on education, cf. R. McKeon, "The Problems of Education in a Democracy," in *The Bertrand Russell Case*, ed. John Dewey and Horace M. Kallen (New York, 1941), pp. 91–130.

directed to the reasons or sensibilities of other members of the community.

The effort is sometimes to effect conviction by means of arguments which purport to be *scientific* and to find their basis in the exhibitable nature of things, and such efforts of demonstration may be said to be scientific whether their subject matter be natural changes, abstract quantities, human desires and thoughts, or divine attributes. Conviction is more directly and effectively influenced by arguments based on or directed to traditional assumptions than by those tested by reason and science, and *dialectical* communication is more pervasive than scientific proof in that social osmosis of opinions, creeds, and doctrines which, rather than strict logic or overt force, constitutes the nature of tradition and authority. In such communication there is no limitation of doctrine, subject matter, or principle: art imitates nature and science imitates art, philosophy borrows from science and serves theology, religion influences art and assumes the functions of politics; and, in general, casual as well as learned talk about action, aspiration, and regulation retains tags and fragments of partially forgotten poetry, religion, and science. Finally, in addition to arguments which may be considered in their general forms and in addition to the impacts of groups and individuals on each other within particular societies which likewise assume a general form in common opinion, a third set of devices is used in democracies for solving problems and arriving at agreements which depend neither on doctrinal concurrence concerning fundamental assumptions and reasons nor on appeal to scientific proof. These methods of arriving at agreements are prominent in the instrumental or symbolic analysis of power politics, and they were once treated as *rhetorical* methods, when "rhetoric" was not restricted to its current narrow sense, but included all forms of propaganda, pressure, and persuasion. The methods of rhetoric take into account circumstances and prevalent opinions, the particularities of influence or argument, and the character and credit of proponents. Dialectical methods differ from rhetorical in the stress that dialectic places on the structure and compendency of the doctrine itself and on the assumptions or beliefs which support it. Scientific methods differ from dialectical and rhetorical in that science seeks its bases for principles of proof and doctrine in the nature of things in general or in the ends of human action in particular. The practical value of the distinctions among these methods is not diminished by the fact that dialecticians tend to deny the difference between dialectical and scientific methods, and semanticists and instrumentalists tend to make rhetorical do service for dialectical and scientific methods. For even if the three methods are treated as one, in anticipation of that apocalyptic day when the ecumenical hope of the unity of science is to be realized, theoretical difficulties still separate the advocates of unity, for in the pragmatic unification of methods in terms of operations, the methods of action, scientific knowledge, and rational inquiry may be identical, while in the semantic unification of methods in terms of language, the rules for the construction of languages for the designation of objects and for the stimulation of action may be distinct and independent.

The dialectic of the interrelation of doctrines stands midway between the scientific concern with the nature of things and the regularities of action, on the one hand, and the rhetorical concern with the particularities of circumstance

and the instrumentalities of influence, on the other. Dialectic has therefore been used, not only to determine the nature and interrelations of the sciences and to give rationale to actions, times, and cultures, but also to identify the basic processes of thought in the individual with the processes of the evolution of history and nature. Among philosophers, Plato could unify the sciences by a dialectic based on the eternal Ideas; Augustine could make dialectical use of the Trinity to schematize the sciences; the attributes and modes of God permitted Spinoza to unite physics, psychology, and ethics by the mathematical method; Hegel depended in his dialectic on Spirit, Marx on the means of subsistence and the instruments of production, Schelling and Dewey on the insight or operations of art, the older positivists on the religion of mankind, the newer positivists on the rules of language. Among historians, on the other hand, the unity of universal history was first seen in the confluence and culmination of lines of development in massive "world" empires, and later more complex unities were sought and their bases laid in philosophic theories. The materials of universal history were organized in two ways: according to lines of development and according to successive kinds of rule. The historians of Rome—Polybius, Diodorus Siculus, Florus, Appian, Justin—traced the long series of events which culminated in imperial Rome; the Alexandrian scholars developed a scheme of periodizing history, which was given canonical statement by Claudius Ptolemy, according to the four monarchies of the world: the monarchies of the Assyrians and Babylonians, the Medes and the Persians, the Macedonians and the Diadochi, and, finally, the Romans. The one tended to a progressive, the other to a cyclical, theory of history; and when they were fitted to Christian documents, both created problems for Christian doctrine which persisted even in Renaissance and modern theories of history. Following earlier suggestions in Hippolytus, Origen, and Eusebius, Jerome found authority in the Book of Daniel to repeat the sequence of the four monarchies and to continue it in the Incarnation, the Last Judgment, and the Kingdom of God, thereby bequeathing to the Middle Ages a problem concerning the parallelism of the coming end of the last and current monarchy with the unhappy fates of the preceding monarchies, which was still serious when Sleidan filled in the medieval extension of the history in his *De quatuor summis imperiis*. Eusebius, Jerome, and Augustine similarly divided the history of the world into six ages, the first beginning with Adam and the sixth with Christ, and Augustine by means of the distinction between the celestial and the terrestrial cities was able to explain why the culminating tradition of Roman history was untenable and why Rome had fallen; medieval chroniclers and historians learned from Isidore of Seville and Bede to repeat this sixfold, and sometimes seven-fold, division of ages in the opening portions of their narratives.

Remnants of the problems raised by the fall of Rome and by the translation or continuation of the Roman Empire are still found in history and politics. Originally the cyclical theory of history ran into difficulties when its repetitions were extended to include events peculiar to Christian history from the Incarnation to the Last Judgment, for, in general, it had to face the embarrassing consequence that the recurrence of cycles might require that the true religion was preached and forgotten a number of times in earlier ages; while the progres-

sive theory of history had its problem in distinguishing lines of degradation from lines of improvement and in separating the events which contributed to the terrestrial iniquities of man from those which led to his eternal salvation. These difficulties and problems have been inherited and transformed in modern theories of history. For the cycles of change which are thought to have led to the decline of the West at this season of history are opposed in other theories by cycles whose foundation and importance are found in other tendencies; and the "perennial philosophy" on which philosophers are thought to have worked since the beginnings of speculation has usually been shown to have been misinterpreted by all but one of its proponents and has been hedged and almost overwhelmed for the greater part of its history, questions of internal differences apart, by waves of degrading logicism, scientism, mathematicism, materialism, and naturalism. On the other hand, theories of the perfectibility of man and the steady progress of knowledge, which were popular in the eighteen century and which have been continued in modern pragmatisms, have had to extend Augustine's labors of differentiating the City of God from the City of the World by proper emphasis on the progress of science as distinguished from the recurrence of human mistakes.

Both theories, moreover, have from the beginning used scientific or philosophic hypotheses to account for the succession of ages and the consistency of character in persons and events of each age. Both have made use of analogies and theories of causation. The progressive theory has tended to analogies from the ages of man, like infancy, youth, maturity, and senescence, and it has found its causes in material, social, and political influences. The cyclical theory frequently has based its recurrences on the analogy of the seasons, since the decline of winter may with the passage of time herald a new historical spring, and its discovery of causes in the shifts of material, moral, and intellectual circumstances has usually uncovered recurrences that can be referred to the influence of the planets or the changes of climate. In the thirteenth century, Roger Bacon traced the varying fortunes of mankind since Adam in terms which related the inspiration of grace to the progress of science and the degradations of vice to the causes of ignorance, and Joachim of Flora devised three ages on the analogy of the persons of the Trinity and the influence of three scriptures, the Old Testament, the New Testament, and the "Eternal Evangile." In the eighteenth century, Vico sought to establish social theology, as distinguished from natural theology, as a new science on the double basis of philosophy, which contemplates the true by means of reason, and philology, which is the science of facts and language, and his new science traces the history of the development of human society through three periods: theocratic, heroic, and human. Comte's three ages and Spengler's four seasons, Hegel's evolution of the Spirit and Dilthey's development of the concept of man, the anthropology of communities and the sociology of cultures are variant efforts to isolate the peculiarities and trace the changes of human groups and successive periods. The dialectical method of historical explanation used in both progressive and cyclical histories is closely related to the dialectical method used in society to affect the views of men and to convert them to new convictions. It is a historical method when it is used to set forth the interrelations of atti-

tudes, thoughts, and beliefs which define and determine the *particular* characteristics of a group or a time; it is a method of conversion and modification of basic convictions when the thoughts of individuals or groups are reoriented to newly accepted *general* doctrines or principles. As method of history, dialectic is powerful in clarification and explanation, but arbitrary and therefore fundamentally vague; as method of conversion, dialectic is powerful as a means of refutation and preparation for conviction, but closely allied to the plays of sophistic and the dangers of unregulated power. In democratic societies dialectic operates as method of history in the presentation of a multiplicity of possible accounts of what has occurred, and it operates as source of conviction in the multiplicity of agencies proselytizing, deliberately or unintentionally, for innumerable creeds—social, religious, philosophic and scientific: its methods in both functions are distinguishable equally from the methods of scientific demonstration and from the methods by which agreement is reached concerning an issue or a course of action short of doctrinal conversion or scientific demonstration.

The discussions in a democracy, since they cut across the lines of fundamental conviction, are largely arguments in which the variety of meanings can be clarified by consideration of source, circumstance, audience, and purpose as well as of the argument itself. The tendency to see a close relation between processes of democracy and scientific method has introduced a strange confusion into our analysis of propaganda, which constitutes the modern fashion of pursuing the study of rhetoric, for we suppose that a strategy of truth is in itself convincing or persuasive, as it would be if political discussion were scientific demonstration, and our knowledge of the verbal devices of bad propaganda makes us suspicious of devices essential to plausible argumentation and good propaganda. In a significant sense the issues of political discussion reduce to what men say and what they present or credit as facts rather than to the "facts" that might be discovered in sober, impartial, and later analysis. Political arguments and charges are therefore trustworthy signs of the issues of discussion despite the inaccuracies of their statement of fact, the ineptitudes of their analyses, and the bias of their obvious but unstated assumptions. The forms of argument themselves determine in an important way the problems that have been basic in the political life of the United States and western Europe even when the changing issues to which they have been applied have shown little other similarity. The recurrent contrarieties of argument and the recurrent principles to which arguments appeal have supplied molds of significance which have often determined the subjects of dispute and the asserted oppositions. The interdependence of persistent rhetorical topics and practical issues forms a pattern of recurrence which frequently gives sense to statements of issue which are otherwise misleading. Thus, for example, two of the most persistent forms of argument in recent discussions are little changed, even in statement, from the difficulties which Alexander Hamilton anticipated more than a hundred and fifty years ago in his advocacy of the new Constitution. They are the arguments for efficiency and unity and the opposed arguments for the preservation of rights and the utility of criticism. Any policy or action may be defended by the one set of propositions and, if so defended, attacked by the other. Signs of

imminent or actual dictatorship have been seen in all devices conceived to promote efficiency in national administration and planning or in international co-operation; and, at the other extreme, expressions of concern for the forms of government or the rights of people have been dismissed as partisan political maneuvers subversive, either by design or by naïve accident, of the institutions they are said to serve. Hamilton expressed the two attitudes succinctly in the first *Federalist* paper:

> An enlightened zeal for the energy and efficiency of government will be stigmatized as the offspring of a temper fond of despotic power and hostile to the principles of liberty. An overscrupulous jealousy of danger to the rights of the people, which is more commonly the fault of the head than of the heart, will be represented as mere pretense and artifice, the stale bait for popularity at the expense of the public good.[49]

There are dangers and ambiguities in both arguments, but there is additional evidence, since the events Hamilton had in mind when he wrote in support of his conclusions that "a dangerous ambition more often lurks behind the specious mask of zeal for the rights of the people than under the forbidding appearance of zeal for firmness and efficiency of government."

Explicit discussion and decision concerning action must be arrived at and formulated in arguments that are ambiguous because they can, and usually must, be referred to divergent convictions, interests, and information as well as to those common beliefs, common ends, and common knowledge on which the proponents of the arguments seek to make them rest. Differences are resolved ultimately in democracies by consulting the will of the majority, and the fourth and final formulation of the difference between democratic process and scientific method fixes the otherwise fluid and debatable differences between the two and emphasizes the importance of differentiating them, for votes have the same weight whether based on fundamental knowledge, common belief, transient opinion, or reasonless whim. In the processes of discussion and argumentation, of inquiry and education, there is a movement, when the effort is successful, from whim, through opinion and belief, to knowledge, and the possibility of such a dialectical clarification and transformation of issues is doubtless at the back of the analogy of democracy and science. The possibility of scientific scrutiny of democratic processes or even the use of science by a citizen for the resolution of problems in a democracy, however, is no argument for the similarity of the two, for the democratic conditions which permit such use of science are not themselves contingent on science or scientific knowledge but rather depend on the freedom to supply, if reasons are sought or demanded, a diversity of reasons based on a diversity of grounds.

Problems are resolved scientifically when the solutions are based on grounds that in some sense involve the nature of things; problems are resolved democratically when the solutions are based on grounds that depend on the free decision of individuals. The very differences in the assumptions or principles underlying the solution of problems and the resolution of disagreements which distinguish the method of democratic decision from the method of scientific inquiry, proof, and control constitute the foundation for their concurrence and mutual support. Political and social decisions may be made without encroaching on the freedom of thought and inquiry, and

[49] *The Federalist*, No. 1, p. 5.

scientific conclusions may nonetheless affect political and social life. Democratic conditions may be made highly favorable to the development of science, and scientific advances may be used to make the solution of democratic problems more effective by relating free decisions to the actual state of affairs in matters that require expert competence. Scientific method is not neutral to democracy, since they supplement each other, one supplying congenial conditions, the other effective instruments, in the resolution of distinctive problems; but that mutual compatibility and aid is due to the fact that scientific method is not neutral to democracy in another sense, since the ultimate criteria by which differences of opinion are resolved by scientific method and democratic process are opposed. The scientist and the citizen both use procedures of inquiry, both depend on communication and information, and both engage in discussion; but the decision in the case of science is based on the subject of discussion and the nature of things, while in the case of democratically resolved political and social problems the decision is based on the relative numbers of those who favor the proposed action. In scientific questions the majority may be wrong; in social and political problems what is advanced as an objective truth may be the disguised expression of a private interest, and even if it is in some impersonal sense true, it will not solve social problems unless it wins social sanction and moral adherence. It is a temptation, when disputes arise in science, to discuss scientific problems and principles in terms of the consensus of scientists, and it is a like temptation to seek the reason for political actions in a common opinion of politicians and publicists who are articulate about the issues. In stages of flux and discussion, the differences between science and democracy appear at their minimum, but the resolution of the flux of discussion, in hypothesis or election, depends on reference to the two extremes which serve to separate and distinguish by their opposed criteria the four processes which characterize the decisions arrived at democratically, as well as the means of testing the reasons alleged for them, from the processes of scientific method.

The submission of a question for resolution by vote marks the end and culmination of the processes employed to affect the decision of the issues. The demonstrations of scientists, the proselytizing efforts of partisans of creeds and parties, and the pressures of propaganda and interest must all, to achieve their effect, be transformed within the individual consciousness into private forms of information, conviction, and prejudice. The resolution by vote is without explicit commentary or reason, and later interpretation is something other than the decision itself, since it must be made in the light of scientific hypothesis, party creed, or group interest. In the actual resolution by vote the issue is translated from any form that may purport to state its objective significance to the form of anonymous and uninterpreted numerical preference. Even when they are stated in terms of the preferences of scientists, scientific problems continue to balance objective considerations as translated into questions of competence. All men's opinions do not have the same weight, and even when the consensus of experts is cited as a means of resolution, other experts may count the preferences otherwise or challenge the authoritative agreement. In science a problem is not settled so long as competent men disagree, and the settlement of a controvert-

ed question by authority, however constituted, is acceptable only so long as it is unquestioned. A simple transfer of this principle to political problems may afford support to attitudes in which democracy becomes the equivalent to opposition to the political resolution of problems: for extreme anarchism or for a simple evolutionary faith that the problems of politics will disappear with the development of some branch of science or for a negative attitude toward any government action which contravenes a minority opinion. The peculiar competences of the few in particular fields set criteria which are opposite to that general competence of the many in judgment of social issues which lies at the foundation of democratic institutions. Even without such improvements in education and self-aid as are appropriate devices for the furtherance and preservation of democracies, there is evidence that the judgment of the many does not reflect simply the individual competences of those who compose the multitude, and it is preferable collectively and in the long run to the judgment of the few, even apart from the uncertainties involved in the choice of the few, in the judges who would make the choice, or the standards on which it would be made: whether on presumption of expert knowledge, moral insight, or religious and contemplative wisdom.

The paradox involved in the judgment of scientific truths according to the competence of scientists rather than the requirements of their subject matter becomes a double error when it is carried over to the judgment of political decisions in terms of the competence of citizens. Since the credit of those who treat the subject matter reflects the adequacy of their treatment, the consensus of experts may be taken as the sign of truth by a nonexpert, and still the hypothesis that the majority of experts may in any given case be wrong, as has happened at the first announcement of most major changes in scientific theory, is a tenable hypothesis for an expert. Both judgments are based on the principle that in particular fields some opinions may be shown to be preferable to others. Since the presumption is that competent scientists will agree on a large range of matters, and since failure to participate in this consensus marks the uninformed, the ignorant, or the prejudiced, the assimilation of political process to science may lead to a conception of political controversies as, in the main, an opposition between the enlightened, impartial, and competent, on the one hand, and the ignorant, selfish, and incompetent, on the other. Such an opposition may indeed occur, but to interpret all serious political disagreement by this pattern is an oversimple and politically dangerous prejudgment. It may lead, in the final instance, to the illusion that all political disagreements may be resolved by candid statement of facts and arguments, or, when that hope is reduced to disillusion, to the conviction that, since agreement is obstructed by ignorance and greed, therapeutic measures of one sort or another, from poll taxes to concentration camps, are indicated. This choice of alternatives reflects only the shift to the other phase of the paradox, for if the "facts" and "sound arguments" are respected by only a few or by one competent leader, fidelity to truth and to the good of the community may be taken as warrant for drastic devices against the experts united in consensus of error. If political decision by vote is treated in terms of the competence of those who decide, the principle which is found to underlie it is opposed to that which gov-

erns the resolution of scientific disputes, for in affairs of state and social questions the opinion of all is ultimately preferable to that of any selected group. The danger of the analogy of science arises from the fact that actions to which political decisions lead have consequences which elude facile analogy to any of the consequences of decisions in science or even in engineering, and the paradox of democratic decision by vote takes its peculiar form not from an analogy to scientific competence in the power of judgment possessed by citizens but from the peculiar influence of convictions and preferences on the rightness of practical judgments. The decision of the majority may be right even though ways preferable in some objective sense and apart from the political situation may be imagined for achieving what are conceived to be the same or preferable ends, and the hypothesis that the true ends of the community may be achieved by "action groups" rather than by processes of persuasion is democratically untenable.

A like paradox is therefore involved when the analogy is made, not from scientist to citizen, but from scientific conclusion to political decision. In science the fact of general agreement among scientists yesterday on some question has no binding force if today new evidence is discovered. This principle carried over to the political field may lead to the feeling that political agreements among men are invalidated by every change in conditions or in opinions and that agreements once made are continued only as a consequence of vested interests, custom, or the "dead hand of the past." The requirements of action introduce legitimately at both extremes of any action—relevant to controlling motives and to desired ends—considerations which are without strict analogues in the procedures of science. Power and authority, the conditions of security and need for some degree of probability or certainty in the prediction of official actions introduce cautions which may be measured, when they are explicit, by calculations of the advantages of any change as opposed to the disadvantages of upsets in order and expectations; while conversely respect for agreement, contract, or treaty can rarely presume, in the absence of obvious advantage or compelling force, to political efficacy on grounds of moral suasion alone.

The urgent need for a discriminating distinction between scientific method and democratic process arises from the crucial distinction between the ultimate decision of issues by scientific test, in the one, and by majority vote, in the other. The fashion in which arguments may be marshaled to prepare for or to support these distinct modes of resolution is likewise in each case distinctive. Conversely if the differentiation of methods of final resolution is ignored, not only may the inquiries, arguments, and tests of science seem similar to those employed as devices for effecting democratic agreement, but the differentiation of three kinds of method in the democratic process may seem theoretic or even arbitrary, since rhetorical argument, basic conviction, and scientific truth would not affect votes differently if the process which determined votes were identical with the scientific method. Once it is recognized that arguments affect political and scientific conclusions differently, the steps that lead to the decision in democratic processes must be held distinct, however irrelevant the distinctions may seem to any one theory of scientific method. They are not wholly irrelevant, since the effect of democracy on the discussion of scientific method is seen most vividly

in the fashion in which scientific method itself has borrowed now from the language of rhetoric, now from the terms of dialectic, and now from the principles of apodictic logic.

Prior to election and in the course of scientific dispute, the citizen or the scientist may undertake to convince his opponents by discussion and argument. The effects and grounds of argument, however, are in the two cases distinct. If the scientist fails to convince or be convinced, he may properly ignore those who disagree with him and follow what he conceives to be the dictates of his subject matter. If the citizen is outvoted, he should follow the dictates of the majority of his fellows in the resolution of differences which are not removed by discussion and he should acquiesce in the abandonment of what he conceives to be the better policy or in the choice of what he judges to be the inferior official personnel. Yet, in acquiescing in action, policy, and personnel, the citizen retains his freedom both with respect to what he believes and knows and, if he continues unconvinced, with respect to the possibility of later influencing policy and action. Moreover, the argument of the scientist defending his own position or exposing the weakness and error of another should depart from the strict demonstration of his proposition only to clarify grounds and implications and to remove erroneous interpretations. There are, to be sure, numerous occasions for rhetorical disputation in science, but they turn more properly on the political manipulations of scientists than on the theoretic or experimental truths of science: on the attacks and defenses of schools of thought, on the formulation of programs for extensions or curtailments of theory or research, on the praise of scientists and the celebration of scientific achievements, and the encroachment of pseudo-science, dogma, or political prescription or the withdrawal of financial support or popular enthusiasm. Political arguments, on the other hand—both those which precede the election of officials and those which bear on the enactment of laws—are rhetorical in nature. They bear on issues which have, or should have, two defensible sides, and the effort to make the argument itself sound is not strictly separable from the circumstances, the proponents, or the audience of the arguments. Consideration of criteria bearing on those additional considerations is essential in judging the means of advancing one's own case or the cogency of other cases advanced.

Partisan arguments rest on principles which constitute, when stated explicitly, doctrines and creeds. The freedom of thought and expression is the freedom of choosing, in belief or party, the principles of argument and action, and although arguments may not always be made to depend on creeds consciously elaborated and the action may not follow clearly from arguments actually advanced, the relation of action and argument to conviction is such in democratic discussions that the same action may, without suspicion of fallacy in formulation or deception in intention, be advocated on different grounds, and different actions may be defended as consequences of the same convictions. In this respect, political discussions differ from scientific disputes, for differences of principle should lead in scientific proof to differences in conclusion and should be defended by reference to the nature of things, whereas differences of creed—political, religious, or scientific—despite dialectical efforts to base them in the nature of God, man, or the universe, may

or may not be distinguishable in the actions or operations that flow from them, and they always contain within themselves the seeds of heresy and schism. Yet principles alleged in action and advocated in orations are far from irrelevant either to the actions or to a realistic examination of what is achieved by action. Failure of the action or refutation of the argument may be accepted with relative equanimity, since, in the exceptional cases when it is not, men fight for principles; and the principles which motivate or are alleged to motivate their actions have a closer relation to the ends achieved, which as ends are likewise principles of their action, than is usually recognized in the discussion of power politics. There has been a tendency in recent years, thus, to treat justice as a fiction, and there have been strenuous and widespread efforts, in the same period, to set up covenants and conditions to guarantee peace: the present stage of discussions indicates the relation of principles like justice and ends like peace, since we seem to be involved in the discovery that to achieve peace it is imperative to be faithful to certain rules of justice. The method required in such a dialectic of fundamental creeds is, like the method of rhetoric, twofold in its bearing on the conditions of one's own creed and on the characteristics of those of others. Faith in democracy is itself grounded in the tenets of such creeds, and the material understanding not only of the traditions of what we believe—of the grounds even of our skepticisms and agnosticisms—but also of the beliefs and traditions of others is the foundation for the operation and progress of democratic institutions.

The social and moral sciences, finally, differ from the natural sciences in their orientation to such decisions and actions rather than to knowledge and the controls which knowledge may bring. This difference is reflected in the subject matter of social and moral science, since it includes as its primary data decisions and actions, the arguments—verbal, psychological, or circumstantial—which motivate them, and the bodies of institutions, customs, and beliefs, which are modified by external conditions and pressure of other convictions, and which serve as the principles for practical arguments; and as its secondary data it may treat data concerning any part of the natural world, including man, which the natural scientist studies, in so far as they are conditions of actions and institutions. If the difference between the ultimate decisions of democratic procedure and scientific method were less sharp, these differences would be reflected only in problematic differences in degrees of precision, and natural sciences and social sciences could be thought to deal in like fashion with correlations of events accessible to different means of measurement. It is the difference of ends, the distinction of knowing and acting, the separation of ascertainment of truth and judgment of value that have traditionally differentiated, in the doctrines of those philosophers who have differentiated them, the two groups of sciences, and the examples and applications of democracy lend additional practical cogency to those ancient theoretic arguments for separating theoretic and practical sciences.

The affinity which may be seen between scientific method and democratic process is nonetheless defended strenuously at present by some philosophers because they associate democracy and science as two important contemporary goods, and because they fear that to differentiate between them would un-

dermine democratic procedures by basing them, if they are recognized to be unscientific, on inscrutable dogmas and intolerant mysteries. The need to differentiate the two, however, is eminently practical, and therefore unaffected by theoretic matchmaking and its proprieties. The dangers of dogma and mysticism lie precisely in invoking vague analogies—whether to religion or art or the family or to science. The analogy of democracy to science is impractical both because the devices of scientific verification are inapplicable or irrelevant to democratic procedures and because adherence to a scientific creed is not indispensable—and if made a prerequisite, would be antithetical—to the exercise of democratic functions. Their differentiation, on the other hand, has practical consequences which may be illustrated vividly in application to the problems of education which are in a fundamental sense coextensive with the problems of democracy.

Education for democracy, no less than the processes of democratic operation for which it prepares, should provide methods for treating four distinct kinds of problems. There is little danger, in the first place, that efforts will not be made to provide training in, and opportunities for the use of, scientific method or the application of results of scientific investigation in the solution of problems. But it is not always recognized that use of scientific method as a social instrument of inquiry and action involves, in addition to the methods used in physical, biological, and psychological sciences, peculiar applications in social and moral problems. The simple transfer of methods from natural science to value judgments has involved the curious fatality, which Hume observed in the case of his own scientific reflections on morals, that the distinctions suggested by science have great theoretic interest but no practical consequences. The problem is in one sense old, since men have been engaged on it at least since the time of Socrates and the Sophists, but with the diversification of data and the complication of devices it is in another sense so new that one would be at a loss, as Dewey has remarked in another connection, to point out or even describe the kind of knowledge in question. The problems of science, in the case of social and moral sciences, no less than of natural sciences, are determined by conditions of inquiry and decision which are grounded finally, when the inquiry is pushed back to first principles, in basic considerations of what is in some fundamental sense the case in various fields of human experience, and in addition to providing methods for such scientific treatment of problems, education for democracy should provide, in the second place, training pertinent to the problems of communication and tolerance. The freedom to develop one's own preferences and convictions is not an uncontrolled privilege to flaunt one's whims and to stand on one's rights, for if the democratic conviction that diversity of opinion and creed is not only tolerable in a community but essential to its preservation and development is to be made broadly operative, members of communities must cultivate some insight into, as well as some concern with, what they believe and some understanding of the beliefs of others. Smaller communities—churches, schools, parties, and associations—may be based on agreement about doctrine, but such communities can be exclusive and still function consistently with democratic practices only in the framework of a larger democratic community in which no doctrinal adherence is enforced and in which moral judg-

ments are respected for their consequences, despite possible differences concerning their bases, since the democratic procedures for coming to agreement provide for the possibility of concurrence in action without the preliminary necessity of shared religion, moral conviction, or political program. This co-operation of men who may adhere to mutually exclusive doctrines is the material and background from which a community of action may be shaped. It is this kind of knowledge, rather than precisely formulated conclusions of social sciences, that Dewey sought for the democratic citizen. Moreover, the actual procedures in a democracy, the stages by which issues are stated, solutions advanced, and positions argued preliminary to decision by vote, require a third kind of training in education for democracy. Since the problems involved in reaching agreement may be solved and action may be undertaken for a variety of reasons and within the frame of a variety of convictions, it is particularly important for the democratic man to be able to discriminate among arguments, good and bad, as they bear on the common good and on his particular interests, as well as to appreciate the diversity of reasons that may concur in a single action.

These three objectives of education for democracy—acquaintance with the methods and results of science, understanding of the diversity of human aspirations and the implications of one's own, and ability to understand and frame arguments—are distinguishable precisely because the processes of democracy are determined in their characteristics by the ultimate submission of issues to decision by vote. The understanding of that process and its implications is the fourth objective of education for democracy, inasmuch as the essential quality of democracy is in the institution of conditions for coming to agreement concerning actions to be taken within a frame that permits freedom of conviction and thought. The preceding three objectives of education, therefore, when taken in conjunction with this final objective, should not be understood as setting intellectual barriers or requiring large stores of technical information for the exercise of democratic functions. Rather all four should be understood as separating technical competence and scientific knowledge from that broad critical competence which revindicates the judgment of the many and enables it to stand favorable comparison with the judgment of the expert few not only in questions of life and of art but even in broad problems of the directions of doctrine, inquiry, and culture. The judgment of the many, which frequently (in national elections, for example, and in international issues) resists sophistries to which the learned are victim, which leads to sympathy as well as suspicion of alien doctrines and to insight as well as prejudice concerning the stand or the loyalties of groups, and which reflects a natural aspiration to knowledge, may be strengthened by education, yet the powers of common judgment in the interests of democracy would not be advanced toward any of these ends, not even in the aspiration to know, by the effort to translate judgment into scientific knowledge. The supporting relations between science and democracy are strong, but their methods are distinct and, in the long as well as the short run, prejudgments and prejudices can be avoided and issues can be handled in accordance with democratic principles only by distinguishing carefully between science and politics.

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DEWEY'S THEORY OF VALUATION

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SINCE Dewey's theory of valuation has probably received its final formulation in his recent monograph on the subject, it is an appropriate time to review and examine this important feature of his social philosophy. His main discussions of value and valuation are familiar and readily available, and therefore I shall not use space in an exposition. While earlier and later writings show minor discrepancies and continuous growth, taken together they build up a theory that is on the whole consistent and richly elaborated.

All admirers and followers of Dewey will agree with the main features of his theory. They will share his protest against authoritative standards, against the notion of fixed and eternal values, and against the theory of a transcendent absolute standard. They will agree with his insistence on the hypothetical nature of ends, on the empirical validation of judgments of value, and on the relativity of means and ends. It is not necessary, however, that those of us who have learned from Dewey and share his fundamental principles should agree with all the corollaries and applications which Dewey himself or certain of his adherents draw from these principles.

To confine the discussion to reasonable limits I shall direct attention to four corollaries that I regard as dubious:

1. From the relativity of means and ends Dewey draws the conclusion that the practice of setting up ideals without provision for their fulfilment is futile or harmful.

2. From the fact that ends and valuation arise in problem situations (or, in the words of C. E. Ayres, in the technological process) the conclusion is drawn that the division of function by which one set of persons is assigned the task of formulating ends and other sets of persons are assigned the task of devising means and techniques is impractical or disastrous.

3. From his own concern with theory of valuation Dewey concludes that theory of value is futile or impossible. He maintains that the theory that values can be compared and ranked (the comparative theory of value) is contrary to fact and false.

4. From the fact that thinking, valuing, and desiring are functions of individual persons, Dewey appears to conclude that corporate decisions are formed by adding individual decisions. His theory of valuation is a theory of how an individual values and it leaves almost untouched the question of corporate processes of estimation, valuing, and policy formulation.

I. ENDS AND MEANS

> It is remarkable that men are so blind to the futility of a morality which merely blazons ideals, erects standards, asserts laws, without finding in them any organic provision for their own realization.[1]

Dewey's protests against setting up ideals without provision for their attainment is readily confused with his protest against fixed and ultimate goals. While agreeing completely with his objections to final goals and ideals of perfection, I am not convinced that the person who

[1] John Dewey, "Psychology and Social Practice," *Psychological Review*, VII (March, 1900), 121.

frames the ideal must in all cases also expound the means for fulfilling it. If he has made his protest against existing wrongs, and set up a goal to shoot at, he may have served his purpose in the field in which he is best qualified. Other members of the community in the course of time may bring to fruition the task he started.

Plato has given the classical answer to Dewey's objections to such ideals, and his reasoning has force even though he was trying to depict perfection. He argued that (1) even though the ideal be unattainable, it will serve as a frame of reference to guide all practical endeavors; (2) even though it may not be completely realizable, it will stimulate peicemeal and partial fulfilment; and (3) having the ideal before us, we can reason back from the end-in-view to the necessary conditions for realizing it and then concentrate on the intermediate end.

With regard to the first point, there can be little doubt as to the value of a frame of reference consisting of relatively stable goals and standards. Dewey in many passages emphasizes the misuse of ideals, but he occasionally suggests their value when used as guides or working hypotheses. One of his more striking comments is from one of his earliest works:

> We conclude, then, from our examination of abstract ideals, that true ideals are the *working hypotheses* of action; they are the best comprehension we can get of the value of our acts; their use is that they mark our consciousness of what we are doing, not that they set up remote goals. Ideals are like the stars; we steer by them, not towards them.[2]

What Dewey says in the above paragraph applies more to abstract standards like justice, freedom, and the like than to individualized ideals like More's Utopia; yet he is right in asserting that their primary function is to give meaning to present action and to serve as guides.

With regard to the second point, I think Dewey has overemphasized the tendency of ideals to function as escapes from reality or as substitutes for action and to discourage practical effort. I know of no scholarly study of the social harm done by Plato's *Republic;* but history records many partially successful attempts to bring into existence such features of his ideal as universal education with selective tests, equal education for young men and women, and the combination of wisdom and authority in government. The fact that Sir Thomas More could not furnish the means for building Utopia in England did not prevent him from giving his own girls the best education possible.

The third point is the most important. It suggests a method of approaching social and personal problems that is not identical with the scientific use of hypotheses but is quite familiar to students of mathematics. Instead of taking stock of our resources (the "given" in a problem of algebra or geometry) and seeing what he can do with them either by trial and error or by projecting "practical alternatives," the student assumes the problem solved and then reasons back from the completed figure (or the x of algebra) to the conditions under which a solution is possible and the means of reaching the solution. Similarly, Plato suggests that we first set up the ideal and then reason back to the necessary conditions and the intermediate means. If the conditions turn out to be contrary to existing or possible facts, or if the means are beyond our resources, then we must abandon or modify the ideal. The success of the scientific use of hypotheses has perhaps

[2] *The Study of Ethics: A Syllabus* (Ann Arbor, 1897), p. 40.

blinded us to a variety of other devices that are also available. I suggest that the carefully controlled ideal has definite advantages in the social sciences.

As a matter of fact, Dewey himself has an ideal—that of "the Great Community"[3]—and he uses this ideal exactly as Plato uses that of "the Republic." He reasons back from the end in view to the conditions for attaining it and finds that they consist of enlightened citizens and free, effective communication. Reasoning back still further, he finds that the condition for a citizenry that is aware of the indirect consequences of social action lies in a free culture—that is, free art, free science, free press, free education.

While Plato's whole conception is singularly narrow and oversimplified in comparison with Dewey's tremendous ideal, Dewey is no more able than Plato was to show in detail how the necessary conditions are to be realized. If Plato could not show how philosopher-kings are to be found, neither can Dewey show how we can have academic freedom in state-supported schools, free art depending on popular approval, free dissemination of information through commercial publishing and broadcasting, industrial democracy along with private enterprise, or free science supported by industries or tax-supported universities.

II. MORALISTS AND TECHNICIANS

> The "idealist" sets up as the ideal not fullness of meaning of the present but a remote goal. Hence the present is evacuated of meaning. . . . .
>
> Meanwhile the practical man wants something definite, tangible, and presumably attainable, for which to work. . . . . He empties present activity of meaning by making it a mere instrumentality.[4]

Ends are objects of intelligent desire or desiring intelligence. Ends are therefore relative to problem situations within the industrial and social process; or, more genera.ly speaking, they arise in a context of which the scientific and technological continuum is an essential part. It would appear to follow, therefore, that the persons best able to evaluate ends and to furnish the means for their realization are the persons directly affected; that is, the persons hurt by existing conditions or benefited by desirable change. If this is so, then there should not be two groups: one whose function is to prescribe ends, and the other, to devise means. Dewey condemns the popular belief that religious leaders and moral philosophers should determine what is good, while economists, politicians, craftsmen, and other persons competent in science and technology should devise the means for realizing the good. The result of this separation of functions is that both the idealist and the practical man empty the present activity of significance and value, as the quotations above show. For these reasons Dewey combats the present view that the social sciences are descriptive and have no concern with values; and Professor C. E. Ayres devotes a large portion of his book, *The Theory of Economic Progress*, to refuting the doctrine that economics is concerned with the price system and not with value.

While accepting the premises of this argument, and agreeing in principle with the conclusions, I am more than dubious about the applications. Many complica-

[3] "The problem lies deeper: it is in the first place an intellectual problem: the search for conditions under the Great Society may become the Great Community. When these conditions are brought into being they will make their own forms" (Dewey, *The Public and Its Problems* [New York, 1927], p. 147).

[4] *Human Nature and Conduct* (New York, 1922), p. 274.

tions and combinations occur to warn us of oversimple and hasty generalizations. It is true that many problems, and therefore many desired ends or goods, have their origin in the social, scientific, and technological process, but the presence of felt ills does not automatically generate either the conscious desire or the intelligent formulation of ends. Very frequently the persons hurt by existing conditions are apathetic and accept their lot with fatalistic resignation.[5] In other cases, their ills generate an attitude of blind rage against the ruling classes or the government or the universe. Conflicts of interest, again, do not of themselves generate intelligent ends. More commonly, they generate conflict and the determination to win and dominate. Though the term "reformer" is not now in good odor, it is a fact that a certain degree of detachment is an advantage to the person who analyzes the difficulty and formulates the ends. In the fight for the abolition of the abuses of child labor it was not the injured children or their parents who brought the matter to public consciousness and set the objectives, but pastors and poets and gentlemen in white waistcoats. In other cases of industrial ills, some doctor intervened. Outsiders are always branded "reformers." Dr. Alice Hamilton, for example, writes: "The defendant druggists in our cocaine cases always demanded a jury trial and their lawyers always intimated that we from Hull House were meddling, high-brow reformers, trying to keep an honest man from earning a living."[6] With regard to conflicts of interest, Sidney and Beatrice Webb assert that the best conciliator of trade disputes is not a person who has technical knowledge of the trade, either from the point of view of workmen or managers, but an "eminent outsider," familiar in a general way with the trade, who has a sound reputation for honesty, fairness, and wisdom.[7]

Cases like those cited illustrate the fact that problems of ends and values may involve a number of different individuals or groups. One group consists of the persons hurt by conditions as they exist, another group consists of those persons who control the means of remedying the conditions, another group consists of experts who have the information or skill in investigation required to make recommendations and devise techniques for correcting the causes of the ills, and another group consists of persons with appreciation of broad human values and with wisdom in dealing with human nature. The classes mentioned would be represented by the workmen engaged in dangerous trades, the owners and managers of the factory, the doctor specializing in industrial health, and the reformer or the conciliator. Widespread general enlightenment would bring these groups closer together in a spirit of cooperation but would not remove the division of function.

Dewey's insistence on the fact that ends and values arise in problem situations tends to overemphasize special, limited goods related to particular times or particular occupations. Since every problem is unique, according to Dewey, it would follow that the ends which would satisfy the problem are unique. This approach to moral or social problems overlooks the fact that there are

[5] For numerous interesting examples of the apathetic attitude of the workers who were injured, the managers who controlled the technical means, the company doctors who tended the sick and injured, read Alice Hamilton, M.D., *Exploring Dangerous Trades: The Autobiography of Alice Hamilton, M.D.* (Boston: Little, Brown & Co., 1943).

[6] *Ibid.*, p. 101.

[7] *Industrial Democracy* (London, 1920), pp. 240 ff.

desires and hence ends-in-view that are almost universal. Among these ends are adequate food, health, companionship, and the like. While these needs, and therefore the ends that would satisfy them, vary at different times and in different sections of the world community, they are so universal that there have arisen world religions and world-wide moral philosophies to formulate the goods of human life in general and to organize humanity for their realization.

The importance of the broadly humanitarian point of view deserves emphasis. I have mentioned Alice Hamilton. Why should she, who was a specialist in bacteriology, and knew exactly nothing of industrial chemistry and industrial diseases, concern herself about the health of the worker? She herself attributes her interest to the example and influence of Miss Addams and Hull-House. And if we ask about Hull-House, we find it modeled on Toynbee Hall of Whitechapel, London. Toynbee Hall was created by a professor of economics (Toynbee) and a vicar of the church of England (Bartlett). The ultimate source in both cases was certain humanitarian attitudes and values at the core of Christianity.

As social life becomes more complex and highly technical, individual members become less capable of doing their own evaluating and devising their own techniques. No individual, for example, has the laboratory facilities to test a pair of shoes or a watch; and, even if he could evaluate them, he is forced to use what manufacturers provide. The whole problem of ends and means becomes a social problem. Society is made up of corporations, that is, of organized groups. The social problem, then, is how to make corporations responsible for the consequences of their acts and thus make them evaluate those consequences; and, second, how to integrate, and thus make use of, the specialization of functions referred to above.

III. THE SCIENCE OF THE GOOD

> Values are values, things immediately having certain intrinsic qualities. Of them, as values, there is, accordingly, nothing to be said; they are what they are.[8]

Quotations expressing a similar view could be selected from *Essays in Experimental Logic* and *Theory of Valuation*. As preferences, as interests, or as things cared for or prized, "values" are "invaluables." They are natural events like pulse rate or digestion. They are not objects of investigation or thought; on the contrary, we devote our thought and care to achieving or preserving them. We do not compare or rank them; each good in its own place and in its own way is irreplaceable; it is invaluable.

In accordance with the above view, Dewey gives scant attention to G. E. Moore's discussion of "intrinsic goods" and "organic wholes" and to A. P. Brogan's "comparative theory of value" and his studies in the ranking of values and the logical structure of value systems. He prefers to call his own treatment of the subject a theory of *valuation* rather than a theory of *values*.

In confirmation of his dismissal of theory of value, Dewey asserts that, as soon as we give thought to values (that is, things prized, preferred), we consider not the values themselves but the conditions that generate them, our reasons for prizing them, their consequences for self and society. Values, he asserts, are exceedingly evanescent; they change continually as we change or our environment changes. As soon as we give thought to an object formerly enjoyed, its value changes either for better or for worse. If

[8] *Experience and Nature* (Chicago, 1926), p. 396.

we try to compare two values, say the study of astronomy and the study of literature, we find ouselves projecting them both into some more remote and more inclusive end.

The summary rejection of theory of value has, I think, been a serious and unnecessary obstacle to the acceptance of Dewey's theory of valuation. He may be right in thinking that valuation is much more important than value, but I believe his rejection of theory of value is unnecessary and unwarranted.

It is true that values have some relation to likes and preferences. The study of the psychology of liking and preferring would no doubt lead to the discovery of relations of fitting or suiting of the valued object to the biological constitution. Thus no amount of habituation can make a human being like certain degrees of heat or certain combinations of sound. Again, there is doubtless a relation between a person's abilities and what he appreciates. Many other factors like education, custom, social class, and the like have their influence. One well-attested fact is that if the task of synthesis is too easy, the experience is insipid; if too difficult, the experience is unpleasant or discordant. Except for a few scattered experiments there are few data on the conditions of value in general.

But the fact that values have something to do with likes and preferences does not imply that there can be no continuity or stability in our values, nor does it imply that our values cannot be formulated rationally and tested intelligently. Repeated choices establish habitual preferences, and habitual preferences establish stable value rankings. Communication and discussion result in enlightened preferences and thus in socially accepted rankings. Study and analysis provide a rational foundation for likes and dislikes and for rational judgments of value. I see no reason why a relational, empirical approach to valuation should not enable a person or a community to fix and rank its more important values.

Since values are related to biological structure, to individual abilities, to cultural background, and to individual experience, I should expect to find, and do find, at least three types of value: (1) values which, because of individual differences, are peculiar to each person; (2) values which, because of common culture within a group, are peculiar to that group; (3) values which, because of the common inheritance of man, are common to the human race. I should also expect to find, and do find, certain characteristic changes in values and value rankings as individuals pass through various stages in their lives, and similar changes accompanying the cultural growth of communities.

Although the human body changes continuously, it is not impossible to have a science of human physiology, and, although values change within the lifespan of an individual, it is not impossible to have a science of the structure of value systems, the interrelationships of values, and the compounding and harmonization of values. Such a science could avoid the idea of absolute and eternal values just as readily as physiology avoids the ideas of entelechies and fixed species. The science of value would have the same relations to theory of valuation that the science of morphology has to theory of growth and evolution.

The most serious objection to Dewey's disparagement of theory of value is still to follow. It leads him to the conclusion that choice is ultimately impulsive. This startling conclusion follows directly from

the thesis that values cannot be compared directly. Let us first examine the fundamental premise.

Dewey insists that the only way to evaluate ends is to compare them as means to some more remote or more inclusive end.[9] He says:

> To *find* a thing good is, I repeat, to attribute or impute nothing to it. . . . . But to consider *whether* it is good, and how good it is, is to ask how it, *as if acted upon*, will operate in promoting a course of action.[10]

It would follow that if we ask whether the course of action is good, we must compare it with alternate courses of action in relation to its consequences for a more remote course of action. This procedure of referring to more and more distant ends must come to an end; otherwise we would never act. We bring deliberation to stop by an impulsive, but enlightened, choice.

The notion that we cannot compare ends or values directly is reminiscent of many other arguments based on the alleged necessity for a "third man." Thus William James argued that two psychic impulses *A* and *B* can unite only on a third object *C*. Bradley argues that the relation between two terms *A* and *B* must be grounded in a third term *C*. Dewey argues that two ends or values *A* and *B* can be compared only in a third end *C*. In the passage from James's *Principles of Psychology* we find his argument for a king nomad or soul. In the passage from Bradley's *Appearance and Reality* we find his argument for the Absolute. In Dewey's theory we have his argument for a final, nonrational act of choice. James's argument did not convince even James. He could have avoided the soul theory by avoiding the "third-man" fallacy; rather obviously, two streams can unite simply by flowing together. Bradley could have avoided the conception of the Absolute by avoiding the same fallacy; quite obviously two terms can stand in direct relation. Dewey could have escaped the highly objectionable theory of impulsive choice by scanning critically the very dubious "third-man" argument. Quite conceivably we can compare two values directly by holding the two in mind together.

The question as to whether values can be compared directly boils down to the question of whether the proposition, "*A* is better than *B*," has meaning by itself or is an incomplete proposition requiring elaboration in the form, "*A* is better than *B* as a causal antecedent of C." My contention is that it is a complete statement.

The proposition "*A* is better than *B*" is a judgment based on enlightened, tested experience. A single experience of *A* and *B* by myself alone would justify the report, "I liked *A* better than *B*." By repeated experiences I might strengthen my statement and say, "To me, *A* is better than *B*." Consistency with the reports of other qualified observers would justify the proposition, "*A* appears to be better than *B*." As a result of the analysis of *A* and *B*, consideration of their relation to more fundamental and assured values, and other rational procedures, we finally assert for universal acceptance the judgment, "*A* is better than *B*." Such a judgment has a high degree of objectivity; it has stood the test of time, of numbers, and of reason.

One feature of the test of reason requires defense. It could be argued that, in referring values in doubt to the larger whole of which they form a part, or to

[9] *Democracy and Education* (New York, 1920), pp. 279 ff.; *Essays in Experimental Logic* (Chicago, 1916), pp. 358 ff.

[10] *Essays in Experimental Logic* (Chicago, 1916), p. 359.

the more fundamental and assured values, we are not comparing them directly. Some persons may interpret this rational procedure as admitting the necessity of a framework of eternal values; others, as admitting that the ultimate standard is the Absolute; and Dewey might interpret it as an admission that we can compare values only by projecting them into future action.

None of these interpretations is necessary. In questions of truth we must have some proposition or idea in doubt, otherwise there would be no problem; but we cannot put everything in doubt at once. We must proceed on the foundation of a vast body of accredited, tested truth. Exactly the same procedure applies to values other than truth. It is never the case that all values or ends are on trial. Therefore, when there is a question of the comparative merits of two values, we can and must bring them into relation to the whole body of well-tested and accredited values.

While the judgment of comparative value is not impulsive, neither is it infallible. As in all choices, there is an element of risk; further experience may prove the judgment faulty. The strength of Dewey's theory lies in its emphasis on the hypothetical character of all valuation. When we make a judgment in the form "*A* is better than *B*," we mean that it stands the test of time, of numbers, and of reason; but we also mean that it will stand the tests of future experience. Our ideas of what is good must enlighten and guide action, and if they fail they will need to be re-examined.

IV. INDIVIDUAL AND CORPORATE VALUATION

Singular persons are the foci of action, mental and moral, as well as overt. They are subject to all kinds of social influences which determine what they can think of, plan, and choose. The conflicting streams of social influence come to a single and conclusive issue only in personal consciousness and deed.[11]

To deny the above statement would appear to commit one to the conception of a metaphysical group mind, and I disclaim any such idea. Yet Dewey's statement would be almost as close to the facts of the world today if it were recast to read: "Corporate individuals are the foci of action, mental and moral, as well as overt. They are subject to all kinds of personal pressure, but these conflicting streams of selfish interests come to a single and conclusive issue only in corporate decisions and actions." One does not need to believe in a mysterious entity called the group mind to appreciate the meaning of phrases like "the deliberations of the assembly," "the pleasure of the house," "the decision of the board," "the acts of parliament," and "the corporate will." And the processes by which an organized group comes to a decision are as open to investigation as the mental processes of a private person.

I see no divergence with regard to the facts or their interpretation; the difference between Dewey's statement and the substitute is one of emphasis. In my judgment the problems of modern political and industrial society—the problems epitomized by Niebuhr's phrase "moral man in immoral society"—can never be solved by Dewey's emphasis on the individual citizen, ***his*** enlightenment, ***his*** participation, and ***his*** valuations. The main concern of the social ethicist is not that of individual evaluation but of corporate valuation.

A corporation is more than a group of individuals each exercising his own judgment and contributing his vote at the regular meetings. The individual is part of the organization of which the

[11] *The Public and Its Problems*, p. 75.

physical plant, the system of conveying and shipping, the system of accounting, and the like are an integral part. What the individual thinks and how he judges are conditioned by all these technical devices. The corporation may also include nonvoting persons like employees, agents, managers; and it has relations with labor unions, dealers, consumers, and legislatures. In this intricate network of relations any maladjustment may have serious consequences for the corporation. A very large portion of the thought and energy of any institution is concerned merely with maintaining and operating the organization. As a consequence, the judging and valuing that takes place is directed largely to self-preservation and self-perpetuation.

The fulfilment of the object for which the corporation was founded is, of course, the primary aim. A business corporation assumes profit as a fixed, self-evident aim. A club or association reminds itself of its aim by means of a printed constitution. Because the aims are fixed, real valuation, as Dewey describes the process, never takes place. The corporation is blind because its vision is centered on only one object.

A consequence of narrow, predetermined ends is the fact that surplus energy not absorbed in self-maintenance or in producing dividends (or whatever the aim may be) goes into expansion. With tremendous power to act, and no vision as to possible ends of action, it behaves like a low-grade organism; it grows by accretion or by absorbing other low-grade organisms.[12]

As a general rule, then, organizations exhaust their energies, including their technical knowledge and skills, in maintaining themselves, expanding themselves, and pursuing their one fixed end. Valuing is not part of their activities. No matter how intelligent and sensitive an individual may be in private weighing of values, he is almost as unintelligent as one of the factory machines in corporate valuation. But this blindness and insensibility is not necessary or irremediable. The corporate body has resources technical, scientific, moral, and religious, if only it could be induced or compelled to make use of them.

The case of giant business corporations is particularly important. Since their decisions and orders have direct consequences for thousands of employees and millions of consumers, and indirect consequences for every part of the world community, it is socially desirable that they be aware of these consequences, that they deliberately intend whatever they actually accomplish, and that they accept responsibility for their acts. If they will not do so voluntarily, and there is little likelihood that they will, society has means for enforcing responsibility. Only a few examples of such means will be cited; what other devices are available is an important question for social science.

Organized labor, by united demand backed by threat of violence, has forced on corporations responsibility in matters affecting the welfare of employees. The industry, or business, to meet this compulsion, develops a specialized organ for evaluating ends where conflicts of interests arise. The board of arbitration is one such organ, and the joint meeting of representatives of labor and management is another. Here for the first time the latent intelligence, technical knowledge, and human wisdom of the corporation are brought to bear on questions of ends and values.

In relation to consumers the business

[12] I take this idea from E. Jordan, *Theory of Legislation* (Indianapolis, 1930), p. 241.

or industry may use its research and testing laboratories for improving its product and its services. If their scientists and engineers were given free scope, there is little doubt that they would formulate and promote a wide variety of ends other than dividends for stockholders. In relation to the public in general, the corporation may develop a public relations department. To these may be added a health and recreation department, a housing and insurance department, etc. The function of all these developments is to serve as specialized organs for seeing and controlling the consequences of corporate acts and to create and evaluate possible ends for the utilization of its vast powers.

While organized labor, organized consumer groups, organized medicine, and even unorganized public sentiment can enforce responsibility on unwilling business firms, the government is the only institution endowed with compelling physical force. The problem of compelling all corporations, both business and otherwise, to accept responsibility for their acts, and hence to evaluate intelligently, is ultimately a problem of government. But the government is also a corporation subject to the same blindness and stupidity as other corporations. In democratic governments, however, there is this important difference—the government is responsible to the people and must stand for re-election. Optimism based on this fact is somewhat dampened by the realization that the most powerful element in winning elections and in influencing legislation consists of the corporations that the government is supposed to control. Here lies the central problem of corporate valuation. I am not sure that Dewey sees the problem, or that, if he does see it, he has any confidence in government as it exists to solve the problem.

T. V. Smith sees the problem and is optimistic as to "the promise of American politics." He uses the unfortunate word "compromise" to designate the process of corporate evaluation and decision as it takes place in legislation. The word is unfortunate because of its popular association with unscrupulous trading, sacrifice of justice to expediency, and the like. Smith's theory is earthy, but not as downright immoral as the term "compromise" implies to some people. It can be summarized in three statements: The body politic develops conflicts of interest; left to themselves, these conflicts would be interminable and disastrous; and politics is the art of adjusting them. In adjusting conflicts, the legislator can be guided by no ready-made conscience or predetermined standards, because, like the industrial conciliator, he must make the contract between warring factions. Since he makes the law or the contract, he has no law to guide him. Every conflict is unique; no rules exist, otherwise the conflict could be settled by the courts of law.

Where this theory is open to criticism is not in the three basic propositions but in the secondary statements. Professor Smith appears to assume that, because the legislator must approach a conflict of interests without fixed standards, he cannot concientiously evaluate. The reverse is true. Because he is not bound by ready-made standards and laws, he has an exceptionally favorable opportunity —and duty—of evaluating both intelligently and conscientiously. He does not merely compromise: he has the task of determining what ends are to be served in this particular case and how these ends are to contribute to the larger ends of national or human policy.

The strength of Smith's theory is that it *is* a theory of corporate valuation; it

recognizes the problem, and it contributes a great deal to the understanding of it. I am not sure that Dewey even recognizes it. In discussing the prevention of war, he says:

> Now to settle disputes *finally*, whether they are between nations or individuals, the experience and wisdom of the world have found two methods, and only two. One is the way of the law and courts; the other is the way of violence and lawlessness.[13]

If the above statement occurred by itself or in a single essay, we would be justified in attributing it to a lapse on Dewey's part; it is entirely unlike his usual pluralism, his distrust of cure-alls, and his appreciation of the complexity and multifarious nature of means and ends. But this essay is one of a series of writings in the inter-war years, all in the same tenor. Had Dewey been consistent with Dewey, he would have approved of numerous methods or agencies for forcing upon nations responsibility for their acts or for promoting international deliberation and evaluation.

In developing the theory that the international court is the one and only alternative to international lawlessnesss and violence, Dewey approved of the Briand-Kellogg Peace Pact by which certain nations agreed to outlaw war as part of international policy. This pact, when approved by Congress and other governments, provided the law under which the World Court could pass judgment. The next step, of course, would consist of the adherence of the several nations to the World Court. But the court was not to be backed by power, either military or economic. Quoting Senator Borah, he asserted:

> The court is to have for the enforcement of its decrees "the same power as our federal supreme court; namely, the respect of all enlightened nations for judgments resting upon open, fair investigations, impartial decisions and the compelling force of an enlightened public opinion."[14]

Obviously, such a court could function only in a world in which there was universal respect for fair investigations, impartial decisions, and enlightened public opinion. Dewey writes:

> I cannot think that emancipation from the evils of nationalism will be obtained by any manipulation of the elements which constitute the nationalistic state, but only by the development of that sort of interaction between social units and groupings that is exemplified in the intellectual, industrial and commercial relations of the states of the Union with one another.[15]

It is difficult to separate cause and effect, but I had always thought that a condition of developing the bonds of "common tradition, habits of mind, beliefs, information, intercommunication, commerce, etc.," was the organization of government with its agencies for enforcing law, mediating conflicts of interest, and holding subordinate groups responsible. Without such agencies the growth of commerce and industry and the rivalry of ideals is bound to lead to conflict and violence rather than to intelligent evaluation of means and ends. A world court backed only by public opinion is the best example I know of "emblazoning ideals, erecting standards, asserting laws, without finding in them any organic provision for their own realization." Compared with this agency, Plato's philosopher-kings are highly probable.

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[13] *Intelligence in the Modern World, John Dewey's Philosophy*, ed. Joseph Ratner (New York, 1939), p. 514.

[14] *Ibid.*, p. 587.

[15] *Ibid.*, p. 519.

THE PHILOSOPHICAL BASIS OF MASARYK'S POLITICAL IDEALS

RENÉ WELLEK

EVERYBODY knows something of Masaryk's political work: his leadership in the struggle for the liberation of Czechoslovakia and his successful presidency for seventeen years after World War I. But few people could give a clear account of Masaryk's philosophy, which, after all, was the foundation of his political work and had an immense influence in molding the mind of his nation. His influence has not been and cannot be obliterated even by the present conditions which have submerged the political and cultural life of his nation. When it will arise again, it will be in the spirit of Masaryk's thought. Thus, a knowledge of his philosophy helps us to understand the mentality of the Czech people more than any other study.

Masaryk was no academic philosopher who wrote textbooks covering all the established branches of philosophy. He was a practical philosopher who believed that philosophy should not only contemplate the world but "should also try to change it." He tells us himself that he has "never felt the need of supplying the world with a system. I was always provoked to thought as I was provoked to action by the pressure of circumstance. But I have, nevertheless, a sort of system—*pro foro interno*—a personality, a character, a man is a system."

It would be wrong to describe this conscious lack of system as incoherence or inconsistency. It simply is a necessary sequel of Masaryk's refusal to believe in any finality of human reasoning. "Man," he says, "is also guided by reason, but only occasionally and in minor matters."

Masaryk had, therefore, no very technical interest in the problems of epistemology. In his earlier life he reacted strongly against the German idealism predominant around him and seems almost completely to have accepted English empiricism, on this point at least. Before World War I, especially in a book like *Russia and Europe*, he showed a surprising appreciation of Kant, whom he extolled against the Russian Hegelians and mystics. Later he settled down to a type of realism for which he coined the word "concretism." The affinities with pragmatism are obvious, though Masaryk disliked the utilitarian bent of American pragmatism. But he is most severe on any subjectivism, which seems to him the greatest betrayal in philosophy. He has no patience with any intuitivism or voluntarism. In every act of knowing, according to Masaryk, the whole man takes part; every epistemological theory which ignores this or that part of man must therefore be false. His "concretism" is directed against skepticism; it acknowledges not only reason but also the senses, the emotions, and the will, the whole experience of our consciousness. It is something like James's radical empiricism without, of course, his exceptional experiences. But epistemology is not the center of Masaryk's philosophy, and apparently a slightly different answer (though necessarily of an empirical bent) would not have materially modified his more personal philosophical thought.

Masaryk has also little interest in problems of cosmology, natural philosophy, etc. His thought centers rather

round the concept of Man. Masaryk never merely describes man's place in the universe; he always criticizes, exhorts, judges, preaches. He combated indifferentism, or, as he called it, liberalism, all his life. He condemned liberalism for its lack of interest in the ultimate human issues, for its lack of firm aim and program in life. Philosophy should serve life, should be part of life, should reform life as it is today.

Masaryk's philosophy is incomprehensible unless we know that it is ultimately based on the religious assumption. Masaryk was a deeply religious man, though he only late in his life spoke or wrote about his own religion and even severely criticized established religions and churches. The universe is always full of meaning to him, and every individual has an important and unique role to play in it. Though Masaryk is no optimist in any cheap sense of the word, he has no sympathy for those who doubt the sense of life and its ultimate importance. This is a large assumption to make, and I think Masaryk knew that it would be difficult to vindicate it by purely philosophical means. God gives certainty and unity to this profoundly and primarily ethical view of life. Masaryk was no theologian nor was he primarily a metaphysician. Theologians can object, therefore, that Masaryk's God has no specific notional content and that Masaryk was obviously much more interested in the effects of a belief in God than in the belief itself. Masaryk, in spite of his high veneration for Christ and the cultural role of Christianity, was also no Christian in any restricted sense of the term. Several of the main tenets of Christianity—for instance, the fall of man and Christ's atonement—are quite foreign to his thought. Still, Masaryk could say that he had never, even for a moment, been an atheist and that he considered the religious question as the only important question in life. It is difficult, however, to define Masaryk's own solution. One of the most interesting aspects of his thought is precisely in this combination of extreme empiricism with a clearly held religious belief. It is obviously also the crux of his thought, which cannot be solved in purely logical terms. The ethical starting-point of his religion is obvious: the difference between right and wrong was something so absolutely clear and self-evident to him, something so immutable, independent of utilitarian considerations and inexplicable on such grounds, that he was driven to look for a sheet-anchor in religion. The concept of God and immortality is for him a guaranty of this eternal difference between right and wrong.

Masaryk was first and foremost a sociologist and a philosopher of history. His thought centered around the crisis of European civilization which came with the decay of the old religious creeds. He diagnoses this disease of modern man and prescribes remedies for it like a physician. Philosophy is to him a struggle against spiritual, moral, and political anarchy. Sociology, the study of man in society, is the foundation of every further advance. He was, therefore, one of the first sociologists in Central Europe. He conceives of sociology in a very wide sense as the science of man which includes also all history. It is not sufficient, he tells us, to describe the social situation or to trace its history to its origins. He dislikes the then current overestimation of history. "Because of development and history, people forget things and concepts. Ideas, principles, convictions are lost in a feeble dilettantism and hide behind a pseudoscientific positivism." Historical explanation, however useful and

necessary, does not solve actual present problems. "The conscience of man is not disposed of by our ability to trace its growth historically." Description or even interpretation is not enough. Causal explanation means only that we have ascertained certain regularities. But in the science of man we must not dodge the most vital questions: wherefore, why, and to what end do these regularities come about? So teleology, explanation by purpose and aim, is the most legitimate method in sociology. The question of the aim of evolution, of the meaning of history, is the highest and most important question of sociology and the most important problem for every single man.

According to Masaryk, the aim of history is the establishment and realization of the ideal of humanity. Masaryk spoke much about humanism and democracy as his ideals, and he has been grievously misunderstood by those who know these only as slogans. Humanism with him never meant sentimental humanitarianism, nor was it ever a pagan humanism set in opposition to a belief in God. Humanism with Masaryk is the perfection of man conceived as a religious, moral, responsible being. Democracy is only another name for this ideal; it means the belief that every single man should be able to strive for perfection, that no outward constraint, no social barrier, no economic or national oppression should bar his way to the realization of human perfection. Masaryk was no egalitarian democrat in the sense of the French Revolution. When he stresses the natural rights of man, he does so out of reverence for the immortal soul of every single man. In spite of his rejection of liberalism and his profound disgust with anarchy, Masaryk remained an individualist. This individualism made him an enemy of all modern forms of collectivism, like bolshevism or fascism, as to him they seemed to degrade the individual to a mere means toward an inhuman end. Man, individual man, moral, free, was Masaryk's ideal.

The whole history of mankind is seen by Masaryk from this point of view, though his most interesting analyses are concerned with the recent past and especially the nineteenth century. Masaryk has no sympathy for oriental mentality. Oriental philosophy—and the same is true of theosophy, spiritualism, etc.—is merely mystical and mythical. Man can emancipate himself from indifference, passivity, subservience to nature, and mere authority only by casting off the mythical view of the world. Not only does Masaryk see myths in oriental philosophy but also most Christian theology is merely mythical to him, and myths are the many modern substitutes for Christianity: the mythical nationalism of the Pan-Slav Russians or of the Hitlerite Germans. Masaryk criticizes the churches from this point of view. He is most severe on the Russian church, whose subservience to the czarist state and whose indifference to social service were its greatest sins in the eyes of Masaryk. He is severely critical of Catholicism, though he admired its universalism and its organization. But he criticizes its blind trust in authority. He objects to its divorce between piety and morality and especially stresses the baneful influence of the Catholic distinction between body and soul. This leads to a gulf between heavenly and earthly love—to an overemphasis on sex divorced from love which is obvious in all Roman Catholic countries. Masaryk always liked to exemplify his analyses with literary examples; he criticizes Zola and Musset as

corrupt Catholics, skeptics, and libertines who waver helplessly between the Virgin Mary and Venus. Flaubert's Mme Bovary prays to God with the very same words which she uses in adoring her lover.

Protestantism seems an enormous step toward the true ideal of humanity in the eyes of Masaryk, and he praises its role in the emancipation of mankind. Hume, Kant, and the whole of modern philosophy were only possible on a Protestant background. But Masaryk criticizes also modern Protestantism as too theological and expects little from it in the future. The theological world view, which is actually mythical, has, according to Masaryk, decayed irrevocably. The problem of modern man cannot be solved by a simple return to religion. The problem has become: How can we recover the values contained in religion without accepting this mythical view of the world? Or, alternatively: How can we avoid skepticism, pessimism, and ultimately nihilism without a wholesale acceptance of church-religion? Masaryk admits that science and the scientific view is a necessity both for a truthful mind and as a useful tool, but he does not admit its solution of all philosophical problems. He objects to naturalism because it undermines human personality, makes man a mere product of natural processes, explains consciousness and human ideals as merely biological functions, denies the validity of moral laws and norms, deprives man of his responsibility, and paralyzes his actions by a false belief in fatalism. Masaryk then fights on two fronts: against both mythical religion and naturalistic science. He rejects also the way out recommended by Romanticism. Romantic idealism, especially as represented by German post-Kantian philosophy, is to him the disease of individualism. The romanticist denies the world, either philosophically by proclaiming it an illusion, morally by refusing any responsibility for his actions, or religiously by denying God and exalting himself to the stature of a god. The inevitable end is always skepticism, sorrow, depression, suicide, and even crime. Raskolnikov and Ivan Karamazov in Dostoevski's novels are the brethren of Manfred, Rolla, Faust, and Zarathustra. "Man cannot remain God for a long time. He cannot remain alone. He must destroy himself." The romantic glorification of the titan-like Faust or Manfred is merely the excess of egoism. Egoism leads to an orgy of passion, instincts, mere fancies, upheavals, and irresponsible revolutions. The modern wave of suicidical mania is a symptom of the breaking of old ties, of the shattering of the old unifying and satisfying view of the world. It is the end of civilization, the end of modern Europe. The modern mass hysterias are merely the obverse of the same mentality. The modern egoist turns to refuge in an orgy of depersonalization; he tries to sink and forget his individuality in the mass; he plunges into mystical hatred, into blood lust and war. World War I appears to Masaryk in part as such a tortuous reaction against excessive subjectivism, as an escape into collective experience at any price, if only by depersonalization, by making man forget and giving him some aim and purpose in life and death. In the last years of his life Masaryk analyzed fascism and naziism trenchantly as such mystical mass movements which actually do overcome the skeptical individualism of the nineteenth century by an immoral collectivism. Europe, then, according to Masaryk is passing through the convulsions of a great crisis. The old religion is dying. Roman-

tic individualism leads to moral anarchy. The sciences as such cannot satisfy man. The new mass movements have no ethical standards and no intellectual clarity. What, then, is the way out?

Masaryk does not deny the role of science. He believes in its necessity. But mere looking-on, mere accumulations of facts and interpretations, or mere research is not enough. We must reorganize the sciences, co-ordinate their results, and rebuild the shattered world picture. So after the early book on *Suicide as a Social Mass Phenomenon*, which gave such an astonishingly clairvoyant picture of the European crisis as early as 1878, Masaryk's second book, on the *Foundations of Concrete Logic* (1885), tried to draw a map of all the sciences, to suggest their classification, interrelation, and co-ordination, and to assign to philosophy its real and most important task: the re-creation of a consistent world view based on the results of all the sciences. His aim was not merely theoretical; he rather wanted to furnish man with a new "Advancement of Learning." He wanted to save man from intellectual and therefore moral anarchy. A rational and moral transformation of mankind can be achieved only by co-operation, through society.

The ideal of humanity means necessarily the conception of moral politics. There are no politics which should not work toward the establishment of this one aim: the realization of humanity, of God's kingdom on earth. So socialism is simply part and parcel of Masaryk's humanism. Socialism to Masaryk is, of course, not identical with the teachings of Karl Marx. In a long book on the *Social Question* (1898) Masaryk criticizes Marx as a positivist, as a blind worshiper at the altar of nineteenth-century science. His system, with its belief in economic laws and the inevitable class struggle, leads to fatalism; it undermines individual moral initiative; it denies the universality of one absolute moral standard. Masaryk rejects also the Marxian explanation of all spiritual life as a mere reflection of economic conditions; ideas are to him just as influential as economics and are by no means dependent on them. But still Masaryk was a socialist in the sense that he believed in the necessity of radically solving the labor question, in abolishing exploitation, and in raising the laborer to full human dignity. This belief in social democracy did not include merely the industrial worker but extended to every type of oppressed humanity: the farm laborer as well as the town proletarian, the woman as a household drudge or sexual slave. Masaryk is most emphatic and very eloquent on the sexual question, which he sees with the eyes of a true democrat and firm believer in woman's moral equality.

Masaryk assigned a special role in the realization of this ideal of humanity to his own nation. He expounded a whole philosophy of Czech history in several books on leading figures or current political problems. Masaryk extols the Hussite period as the summit of Czech history and praises the sect of the Bohemian Brethren as the finest embodiment of the ideal of humanity in history. The Czech national revival in the early nineteenth century seems to Masaryk a direct continuation of the Czech Reformation, and the modern Czech democracy preached by him and his followers is to him merely a fulfilment of the early promises of the Czech tradition. In the future the Czech nation was in Masaryk's view to play an important role in the establishment of a new age of democratic humanity. The conception of Czech history expounded by Masaryk has been subjected to a good

deal of criticism by professional historians, and it is difficult to deny that they are sometimes justified by the facts. Masaryk obviously overrated the democratic spirit of the Hussite movement and the Protestant share in the national revival. But these and similar criticisms —however justified in detail—miss the point of Masaryk's philosophy of Czech history. It is less a description of facts than a conscious judgment of men and movements. It is a program and a wish for the future. Masaryk believed that ideas are prime movers in history. He inculcated a new self-confidence in his nation, a faith in the ideals of justice and humanity, and a belief that the Czech nation has by its great men in the past done fine work for the cause of the emancipation of man and that it is its task to continue in this great national tradition.

Masaryk's other elaborate studies of intellectual history are all governed by these same ideals. His long book on *Russia and Europe* is again not merely an academic analysis of Russian thought in the nineteenth century. It is—especially when we add the separate studies on Dostoevski—a general indictment of Romanticism and materialism. Pan-Slavism, nihilism, and bolshevism are criticized sharply and relentlessly. Russia—in spite of Masaryk's great interest in it and in spite of his admiration for Dostoevski and Tolstoy—is to him an enlarging mirror of Europe, a laboratory in which all the European diseases appear in almost unadulterated purity.

Masaryk is most unfavorable about German "culture": its Romanticism and its subjectivism and titanism. He is critical of Lutheranism because of its subservience to the state, and he rejects Hegel, the glorifier of the state, and Nietzsche, the moral anarchist. But he criticizes also Goethe's *Faust* as a symptom of titanism and egoism, and he accepts only the German humanist tradition in Herder, Lessing, and Schiller. He had a special reverence for Beethoven. His attitude toward Kant was more complex and varied at different stages of his life. Though he rejected Kant's subjectivism, he came to value his critical philosophy and the categorical imperative.

France was less in the forefront of Masaryk's thought than any of the other great countries. He criticized the cult of reason during the French Revolution unfavorably, and he attacked French romanticism consistently all his life. In his studies of Baudelaire or Zola, Musset or Flaubert, the drawbacks of Masaryk's literary criticism stand out most clearly. He had no interest in the art of a work of literature but took it merely as a symptom of a moral or mental attitude. But his indebtedness to Comte is obvious, and, after the World War, Masaryk showed more interest in the positive side of French liberalism and interpreted the Declaration of Human Rights in the light of his own, more Christian ideal of humanity.

Of all the different types of civilization, the Anglo-Saxon was most congenial to Masaryk's mind. He accepted the empirical tradition of British philosophy from Locke to Spencer; their interest in man and his social duties, their indifference to speculative metaphysics, their pragmatic conception of truth, were reaffirmations of his own fundamental bent of mind. Hume as a skeptical philosopher was the one thinker who impressed him and worried him. His first lecture at the University of Prague in 1882 was devoted to an attempt to refute Hume's arguments against causality by a curious use of the probability calculus. With the aid of his American wife, he translated Hume's *Enquiry concerning the Principles*

of Morals into German. On the whole, he felt at home in English literature, and he never tired of praising the sanity, humanity, and Protestant Christianity of the English tradition. Obviously he had little interest in English poetry outside Shakespeare, and Byron he criticized severely as a specimen of romantic titanism. He was repelled by writers like Joyce or George Moore, who seemed to him essentially Catholic and decadent. But he loved the main tradition of the English novel from Defoe to Wells and was particularly appreciative of women writers like the Brontës and Elizabeth Barrett Browning.

Masaryk then appears to us mainly as a philosopher of history, as an analyst of the crisis through which modern man is passing, as a preacher of humanity, in his own high sense of the word. We may not always be able to agree with his diagnosis and his remedies, but we must admire the singleness of purpose, the utter devotion to his task, the absolute sincerity of everything he ever wrote or spoke, and, finally, the astonishing unity of personality and work, of words and deeds. His lifework grew out of his thought: his thought has stood the test of reality. He realized his dreams, which is rarely the fate of man, because he worked systematically, firmly, relentlessly, for their fulfilment. He died a happy man, though it is a tragic reflection that exactly one year after his death his lifework crashed under the impact of forces which even his spirit could not combat. But it was not in vain. His work has made the moral resistance of the Czech nation possible, has made it stronger than if it were inspired merely by romantic nationalism, and has given the nation an ideal which —because it is the ideal of *all* humanity —will never die.

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DISCUSSION

LAW FOR CIVILIZED NATIONS

GLENN R. NEGLEY

A MUSEUM piece is properly approached with a different attitude and with critical criteria other than are commonly employed in the observation and evaluation of contemporary pieces of work. Charles Warren Everett has presented us with a prime antiquarian delight in this disinterment of Jeremy Bentham;[1] and certainly all who have speculated with annoyance on the random incompleteness of Bentham's published works will feel keen gratitude for this rewarding piece of research. To Everett must be paid the additional respect due an editor content to edit, who has restrained the surely almost overwhelming desire to embellish and emend. No one, except possibly the sales-minded, would prefer that such a precious relic be altered to suit an individual notion of what might have been said had the author himself done the editing. True, the reader will at times find interpretation difficult; the going is occasionally as rough and tortuous as the effort to trace out the pattern of design on a long-buried and mutilated vase. But it is of primary importance to remark that Everett has left his discovery to speak for itself: when there is a break in the manuscript, it simply breaks; when Bentham gets himself into a veritable morass of verbiage which borders on meaninglessness, the reader is left to do his own editing and interpreting. What the editor has to remark upon the text is confined to an Introduction; even the footnotes to the text are Bentham's own, providing an unexpected pleasure in enabling the reader to continue throughout Bentham's own construction without the annoyance, so common to such works, of continual interruptions diverting the attention of the reader to minutiae with which he is already familiar and accomplishing little other than an interference with the pleasure of the experience.

Everett establishes, to the satisfaction of this reviewer at least, that the folios he has here assembled comprise what Bentham had intended as the sequel to *The Principles of Morals and Legislation*. It is natural to regret that one hundred and sixty-three years elapsed between the writing and publishing of the original and the supplement to that work which has been so influential in Anglo-American politics and jurisprudence; but I must confess that I find mixed with that regret a suspicion that this circumstance constitutes almost a final satirical epitome to the history of one who unwittingly became the most influential figure in a decisive stage of history. The reader will in this present work meet again the calm disdain of an analyst who proceeded dispassionately to explore and define to the minutest detail, confident in the belief that only through the proper classification and definition of the factual details of a problem could the nature and circumstances of that problem be made clear and that only after such clarification could action approach that problem with rational discrimination.

These explorations and attempts at definition of the details of the problem of law and order in society are tedious, and the process will most certainly be unbearable to that brand of social correctionist who anticipates that the sheer weight of his own rightness will bulldoze all obstacles of dis-

[1] *The Limits of Jurisprudence Defined: Being Part Two of An Introduction to the Principles of Morals and Legislation, by Jeremy Bentham.* Edited, with an Introduction, by Charles Warren Everett. New York: Columbia University Press, 1945. Pp. xxii+358. $4.50.

agreement into a level path of active operation. This book, because of the circumstances of its publication, is at times confused, to say the least; the grammatical construction, being unedited, is often labored, and Bentham here allows himself incidental indulgences in sprees of semantic sport which exceed healthy exercise. The reader will have to make the best he can of such linguistic calisthenics as "superventitious," "dicsodotic," "dosidynamic," "jurisdative," "disaccensitive," "comminative," "anaetiosistic," and "metaphylactic"; perhaps some of those who have occasion to read the law may give thanks that Bentham's classificatory terminology remained buried in the British Museum rather than having added to the obtuseness of bastard Latin which already infests legal literature. Yet, the almost slashing quality of Bentham's approach to some of the problems which have been bruited about in carefully edited prose retains its compelling vigor even in the awkwardness of an unedited and incomplete manuscript.

Bentham enunciates in this continuation of the *Principles* what is certainly the minor premise to his dictum that the affairs of man are dominated by pleasure and pain. This second principle, as stated by Bentham, concerns the nature of law: "Written law is the law for civilized nations: traditionary law, for barbarians: customary law, for brutes" (p. 244). The conclusion is that law, as the source of order in society, must be an analysis and writing-out of the circumstances attendant upon man's governance by pleasure-pain. This is the counterpart, indeed rather the end product, of Bentham's moral calculus: a legal calculus. Thus, while the number of laws will vary in accord with variation of circumstances, "still however, take any one period, at that one period the number is determinable" (p. 262), and "a man need but open the book in order to inform himself what the aspect borne by the law bears to every imaginable act that can come within the possible sphere of human agency" (p. 343).

No purpose would be served in a review to mull over the usual arguments concerning Benthamite hedonism and utilitarianism. This is by no means to imply that the problems are not fundamental, for they are; and it most certainly does not indicate that Bentham is in this supplementary work any less dogmatic and harsh in the statement and application of those much-debated principles, for he is not. It seems more to the point here to observe what those principles imply for Bentham in the more exacting areas of law and jurisprudence. This is particularly interesting to me, for I have with many others tried to infer what Bentham would have said about some of the specific problems of the nature and construction of law if he had written just such a work as this unpredictable collection.

"In every law there must be one or more persons concerned"; laws are addressed to individuals as such. Bentham is not one to mince words, and he admits readily that this means that law begins by doing harm, for "no law can be made but what trenches upon liberty" (p. 139). If the law stops with this restriction of liberty, it is "pure evil"; the justification of any law must be the proof that good comes from its application—a good which must finally be evaluated in terms of the "greatest good of the whole community." But while it is true that the "public is favored by every law in virtue of its being injured in one way or another by every offense," it nevertheless remains that both the source and the end of law lie in the individual as such. "The commencement of every act must be in a person" (p. 119), and "coercion if it attaches at all can attach only upon individuals. Benefit men may receive from the law in their collective capacity: but it is in their individual capacities that it is addressed to them" (p. 143).

Hence, the law creates rights by defining duties (p. 55); and while Bentham admits that the performance of duty may sometimes promise definable, tangible, and immediate reward, he asserts that in the great majority of cases it will be the fear of

punishment alone that will obtain compliance with the law. This means that the primary concern of the lawmaker is the exertion of a negative influence upon the motives and actions of individuals. Bentham can be exasperating in his high-handed and cavalier dismissal, because he thinks they have no import, of problems which seem elemental to the subject he is discussing; note this simplification of the problem of individual motivation:

> As to the internal motive, whether it be the purely social motive of benevolence or as in this case it is called public spirit, or the semi-social motive of love of reputation, or the self-regarding motive of love of power, love of wealth and so forth, or what is commonly the mixture of all together, these are points which as in most cases they are undiscoverable, so in all cases they are immaterial [p. 113].

Such treatment of motivation brings into sharp relief the conflict of private criteria of action and public criteria of good. "Supposing (without any foundation) that any other than his own happiness ought to be the end of any individual policy, what motive has he to pursue it? Supposing (without any foundation) that any other than the happiness of the community ought to be the end of legislative policy, what motives has the community to pursue it?" (p. 116). Any author of such neat and precise apothegms for the problem of action must be reminded of a third proposition: Supposing (*with* a very real foundation) that the motivation of happiness which induces the individual to action does not agree with the motivation of happiness which dictates legislation for the community, or vice versa? Then what? This is, to say the very least, one of the most vital and persistent problems to be encountered in the construction and enforcement of law; to pass the question with a glib assurance that private happiness and public good find themselves in natural agreement is to be more naïve than Bentham was. Despite Bentham's demand for the freedom and liberty of individual thought and determination, there is evident a profound cynicism in his derogation of the private motive of individual happiness in the matter of legal or social order. The law cannot administer pleasure; all it can do is to allow individuals access to instruments from which they may derive pleasure, but these are indeed few. The sources of pleasure, says Bentham the hedonist, are few; the sources of pain are innumerable and inexhaustible. "Any object in nature can be converted into an instrument of pain; few in comparison and rare are those which are calculated to serve as instruments of pleasure" (p. 226). In another connection he criticizes as "trite" and "pernicious" the observation that man "is never governed by anything but his own interest."

The language of law is the language of command (p. 188); and it is a very tenuous connection which Bentham manages to maintain between this essential characteristic of law and his insistence that the individual cannot reasonably act from any motive other than his own happiness. He must admit that whatever "power of imperation" the law has lies in the "disposition to obedience on the part of the people" (p. 101). Whence is derived this disposition to obedience? Not, certainly, from the conviction of individual subjects of the law that their individual happiness will thereby be increased. This way lies Utopia. Thus Bentham seems forced into admitting that upon the legislator lies the dictatorial task of determining what is good for the whole community, and subsequently imposing this decision upon individual men with minimum regard for their individual desires in the matter. The accomplishment of such arbitrarily determined social good is by the simple expedient of seeing to it that the disobedient suffer pain.

This is not, however, quite as bad as it appears, for there is an ever present check on the arbitrary lawmaking power of the legislator: enforcement. Revolutions, says Bentham, are likely to be fomented by unwise exercise of legislative power, as in the devaluation of coinage or disturbance of the regulation of weights and measures, for ex-

ample. What Bentham is getting at here rather awkwardly is marked mainly by its general atmosphere of antiquity; for of this matter we know more from experience than did Bentham. The balancing of a system of checks upon the exercise of arbitrary power in legislation and government has been perhaps the primary achievement of the democratic process as we know it. There is good reason to claim that in this effort we have succeeded relatively well. Under normal conditions, almost the only arbitrary powers remaining in our governmental process are the executive power of veto (which has been progressively abridged), the executive power of pardon, and the legislative power to grant monetary corrections of what appear to be injustices by admitting claims against the commonwealth. However, this gradual delimitation of the power of arbitrary lawmaking to the point of nominal prestige is characteristic of the kind of government we have worked to maintain. Bentham's easy assurance that no sovereign would ever be "mad enough" or "industrious enough" to attempt an exercise of arbitrary power by overthrowing the institutional patterns of law and magisterial procedure without establishing something in their stead—such confidence ought to fall lightly on modern ears deafened by machines of war directed against a not wholly unsuccessful tyranny of just such arbitrary power. It is all very well to assert that a just government rules by the consent of the governed; but it is a sorry society that has no working method of providing that consent a voice short of revolution or war. In the absence of that voice of consent, the only imperative of which law can avail itself is the sheer force which is equivalent to war. Bentham admits that only rarely is the relation of subject and sovereign one of original contract; hence the consent of the governed which lends effectiveness to law by obedience must be sought elsewhere. "In such cases the force and efficacy of the law may depend in a considerable degree on the existence, real or supposed, of some customs to which it is or pretends to be conformable" (p. 192). This description, especially coming from Bentham, is of considerable importance. He has repeatedly denied that law can be derived from, or grounded upon, custom; Bentham insists that law be mediate; custom is immediate. He calls custom "quasi-law," for every rule of custom presents only an individual case, and, in order to become law, it must be subjected to a process of abstraction that will render the rule of action understandable and applicable to all men and not to one alone. This is precisely the process of legislation—in short, the process of mediation which is necessary to construct law. The more complete and exact the mediation, the better will be the law. It must be written, be understandable to those to whom it applies, and the whole law must be expressed in a system of complete codification. Customary law (unmediated) is for brutes, traditionary law (spoken) for barbarians, and written (codified) law for civilized nations.

The task of legislation would then seem to be the speculative construction of law in terms of ends, keeping the while a circumspect eye cocked toward prevailing custom as the only source of obedience to satisfy the imperative of that legal demand. The adjustment of legal ends to active obedience is thus the accomplishment of adequate legislation. "In giving an analysis of offenses, we have given, as far as it has gone, an analysis of legal *ends*"; the penal or punitive provisions of the law which are necessary to make it effective must, then, be oriented to the prevailing customs or attitude toward obedience of the subjects of the law.

The construction of a legal calculus or code, the description of the ends of the law, would seem to be the lesser of the tasks of the legislator; that is, it is the less difficult, for certainly, however hard it may be to reach agreement upon ends, the history of morals and politics indicates that agreement upon ends is relatively simple as compared with the agreement upon means and methods to achieve those ends. It was at this point that Bentham approached the problem that legal thought was to mull over

for a century and a half without noticeable effectiveness: the realization that the legal calculus, however good a statement of legal ends it may be, needs a penal or imperative supplement to make it effective. Bentham would, I fear, be disheartened by our efforts to confine the approach to the problem of international law and order to a formulation of ends, carefully neglecting the essential supplement of exact penal provisions.

Law concerns action in regard to things (p. 160), and every action is made up of three elemental parts: the body in which the action commences, or the actor; the matter in which it has its termination, or the object; and the motion of the act itself (p. 133). Acts are the objects of law (p. 179), and in the final analysis the unity of law will be determined by the unity of acts (p. 265). Bentham has already analyzed the subject of action and law, but heretofore he had not adequately described the object. It is doubtful that he himself would have considered the description in this unfinished work adequate, but it is an important addition to his previous analysis. It is, of course, obvious that a person can be the object as well as the subject of the action which is of legal consequence; but it is significant that in his further description of the object of law, Bentham hastens to admit that "incorporeal objects of property can be nothing but so many fictitious entities" (p. 325). It is to some source other than Bentham's otherwise great influence that we must trace the concern of Anglo-American jurisprudence to establish the property connotation of every real object of law, including persons; but it is of the greatest significance to our understanding of the genius of Bentham to discover here his understanding of the institutional embodiment of property as the only adequate source of the imperative character of effective law.

The implications of this dialectical correlation of the individualistic insistence upon finding the source of the legal act in a person as such, and the recognition that a rational imperative must derive from the structure of the objects in which the legal act issues, are hardly more than suggested in the incompleteness of this work of Bentham's. That, however, hardly detracts from his genius, inasmuch as the nature of the problem as he began to formulate it has not yet appeared to the great majority of those who have had the benefit of a hundred and fifty years of contemplation of his analysis. The best (or, at any rate, some of the most popular) juristic speculation we seem able to produce still plays with words in an attempt to construct arguments for the extremely dangerous practice of permitting highly arbitrary powers of lawmaking and law construction to reside in the single person of a judge. The duty of the "executive magistrate," says Bentham aptly, is to "act in conformity with the law," for which function he needs knowledge, first, of the *law* and, second, of the *fact* (p. 321). It is not his business to judge the ends contemplated by the law; if the particular law is poorly written, thereby necessitating a "liberal" interpretation by the court, Bentham insists that this act of legislation be designated openly as such and that the judge certify his action to the legislator, who may then edit and revise his previous legal construction, so that interpretation in the future will be clarified (p. 337). Otherwise, the process of jurisprudence presents the spectacle of lawyers struggling for the personal decision of the judge and presenting as their "arguments," dependent upon the circumstance of the case, briefs principled by one of two historic and opposed maxims: "*stare decisis*" or "*salus respublicae*" (p. 281). Bentham does not justify bad legislation by an unwarranted attack on presumptive juristic procedure. Quite the contrary: he grants that improperly conceived and poorly formulated legislation places upon the judge the task of "knowing the mind of a man who knew it not himself" (p. 195). But the cure for bad legislation does not lie in the direction of attempting to justify bad jurisprudence as "philosophical."

It must forever be regretted that Bentham's promise remains unfulfilled to "develop at length in a subsequent part of this

work" a plan for the correction of legislation through the experience of administration and adjudication—that is, unless Everett should present us with yet another pregnant manuscript! We have learned much of the necessity for correlating the functions of legislation, administration, and adjudication; and Bentham's assertion that the ends of the legislator and of the administrator must be the same will be accepted so readily as to negate much of his caustic comment on the divergence between the two. But we need to be impressed with Bentham's major argument that corrections of the law, which necessarily arise in the application of that law to action and objects, need to be embodied in the statutory expressions of the law and supplemented by adequate penal provisions. A law which misunderstands and erroneously estimates the very sources of the imperative of law can hardly be expected to render enforcement other than impossible. Short of occasional instances of insight, the objective or institutional pattern of social structure, in which lie the sources and sanctions which ground the inclination to obedience on the part of the subjects of law, can be known only through the lessons derived from the impact of that law upon objects through the action of individuals. A law which does not comprehend the institutional sources and ground of its imperative cannot but find itself in the embarrassing situation of either being ignored or provoking a revolution, major or minor. Note, for example, the astute comment of Ernst Fraenkel that the failure of the Rhineland Agreement and the High Commission after World War I was precisely the failure to provide "clearly defined rules of jurisdiction, procedure, and substantive law"[2]—a neglect which derived mainly from lack of understanding of the institutions of the occupied countries and the consequent failure to formulate laws in terms capable of realization within those institutional patterns.

It is my opinion that this insistence upon making the circumstances of the act in which lie the ground of the imperative an essential supplement to every statement of legal ends in the form of statutory law constitutes the essence of this new contribution from the careful and exacting speculation of Bentham. This is no minor contribution; and the fact that it comes now from an eighteenth-century mind is a tribute to that mind and not to the progress of our thought since his manuscript was buried in obscurity. The fortunes of circumstances have allowed us to make such mistakes as the abortive enactment of the Eighteenth Amendment and still recover just short of disaster; but, in the larger area of man's action, the same error of placing our hopes and reliance upon half a legal construction has brought us to what is surely the ultimate of disaster. "The law can do nothing without exercising power somehow or other, power of some sort or other then must be concerned in every act which it proposes" (p. 298). Laws, domestic or international, which do not contain within their statutory provisions a clear and exact punitive provision are not laws, not expressions of legal ends, but expressions of human hopes.

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[2] *Military Occupation and the Rule of Law* (New York, 1944).

BOOK REVIEWS

ARE MEN EQUAL? By Henry Alonzo Myers. New York: G. P. Putnam's Sons. Pp. ix+188. $2.50.

Here is a book that any intellectual might justly regard as his war work and his contribution to peace. It raises again, and raises high for all men to repair to, the *standard* of equality. It shows equality to be not only a standard but in truth the only standard capable of universal application. It raises this universal standard not only *against the führerprinzip* pretenses of superiority, whether to the Right or to the Left, whether of class or race or creed, but also *for* middle-class men caught in the center of the world's predicament. Moreover, the book clicks off the milestones of failure of any other would-be standard and documents the thesis of equality with such a galaxy of American lights as shows the notion to be, what in truth it is, the conceptual *sine qua non* of democracy. All this the book does in a style so warm and moving as to constitute itself a genuine testament to the spiritual enterprise known as Americanism.

In the Parrington tradition, but more pointed than Parrington, Mr. Myers does us a valuable national service by showing thus how many and how diverse have been the talents in our own history that bear explicit testimony to egalitarianism.

> The road to certainty through experience is long and difficult. If we were looking for no more than a few syllogisms to support an academic proposition, we might despair at the cost in time and labor. But we are looking for much more. The idea of equality is the germinal principle of a way of life. It shapes the lives of men and is reflected in their institutions. It provides a standard of justice for their daily affairs and lights up their joys and sorrows with high religious significance. It furnishes the cultural pattern for enduring literature and suggests humane uses for scientific knowledge. We should not be surprised, therefore, that a search for its full meaning involves a consideration of every high point in the history and literature of the American people [p. 67].

Looking for this, this is precisely what the author finds. In particular, he does an excellent job with the leading literary lights, which the philosophers of equality have been inclined to pass by. Nor does he neglect the statesmen with whom we have associated the growth of America and the integrity of our ideals. Hawthorne, as a belated Calvinist, based egalitarianism upon the thought that men are infinitely, and so equally, "insignificant in the eyes of the Absolute Sovereign." Emerson and Whitman emphasize the infinite, and so equal, worthiness of all men: Emerson discerning through intuition "the link between the private man and the world-mind"; Whitman, too, seeing in every man more than is "contained between hat and boots" but imagining himself into both hats and boots of all men. Melville joins these in seeing in some principle of "compensation" the nemesis of superiority and calls to his aid "against all mortal critics . . . . thou just Spirit of Equality, which hast spread one royal mantle of humanity over all my kind" (p. 51). There are also some pregnant pages upon a man too much neglected, Edward Bellamy. (It is unfortunate that the scope of the work did not permit the author to reach down to call as ally that stalwart democrat, Carl Sandburg.)

It is a warm faith to which Myers here brings poets and politicians to bear, and himself bears, testimony, warm but vague. That men are not equal in an empirical sense, Mr. Myers admits. Equality is not a fact but an ideal, an ideal of the *ultimate* worth of men. Its appeal is almost characteristically to "infinity." All this is vague enough, but Myers' candor compels him to make it vaguer still: to qualify the finite as well as to accentuate the "infinite." "Fortunately," he says, "men can accept the proposition of equality as a standard of values without feeling obliged to treat all human beings as intimate friends" (p. 168). Again: "Although the proposition of equality implies that all are entitled to the same rights, the exact number of rights which every private man may claim at any given time, and the exact meaning of each particular right, must always be determined by the people on the basis of their social experience" (p. 178). Generalizing this relativistic aspect of the equality ideal, Mr. Myers declares: "In a free society, men are neither content to be equal only in the eyes of God nor desirous of being equal in every respect" (p. 171). And, yet, for all the vagueness of the infinite and the relativity of the finite, Myers never wearies and is profoundly right in insisting that "since reason alone cannot control human feelings, the foun-

dations of a free society are secure only when the private man's faith in human equality is unshakable" (p. 167).

In this wise, then, Mr. Myers has served the age-old cause: (1) by giving us a white list, (2) by giving us a black list (especially Calhoun and his southern colleagues), and (3) by reminding us of the breadth of justification available to the argumentative in behalf of the ideal of equality: (*a*) that it is useful, (*b*) that it reflects the "private man's sense of his own infinite worth," and (*c*) that it induces "a tragic sense of the common fate of man . . . . in hearts united by shared joys and sorrows." In this latter line of thought, Mr. Myers, I believe, comes closest to originality in treating this much-worked theme. Veering away from the cult of progress (his discussion of Darwinism is good, of William Graham Sumner excellent), he learns from the poets and shares beneficently with us a lesson the more compatible with years and moods of war: that life is tragic, that the final payment on greatness is grief, and that the sensitivity which makes possible personal joy and social advancement gives to every revolution as its nemesis a counterrevolution and to every joy its appropriate sorrow. In this direction the little book is profounder than we have come to expect books on democracy to be.

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Homo sapiens socialis: Principles of the Philosophy of Responsibility. By Rudolf Jordan. South Africa: Central News Agency, Ltd., 1944. Pp. 243. 12*s*. 6*d*.

Jordan's book is one of the most intelligent and useful presentations that I have seen of naturalistic empiricism. He shows how science reveals a world which must be conceived in terms of five dimensions, the three of space plus those of time and individuality. Because of the fifth dimension—individuality—the concepts of causality and even of probability have only limited validity. Our business is not primarily to predict but to create the future. Life is only a special case of the general fact that nature consists of forces with elastic, rhythmic identity, interacting with other such forces and combining with them into complexes in which the unit forces (e.g., electrons), by virtue of their elasticity, retain their primary individuality, somewhat modified in secondary aspects. In man elasticity is at its highest, because of the human brain structure, with its provision for new nerve connections. Admirable is the development of the thesis that conscious reflection is "a rather clumsy expression of much more delicate physiological forces" and that "thought is not something extraordinary in a simple world, but something all too simple in an amazing world." (The author means *human* thought; or else he is begging the question as to whether or not nature is the expression of divine thought, which by definition would be uniquely complex, indeed as complex as the world.)

Humanity is said to face a great crisis, partly because men now associate in numbers so great that the individual fails to grasp the needs of the whole. An example is the need for intelligent population control, which, as the author strikingly points out, is not one of the more recent but one of the most ancient and universal forms of man's conscious control of social relations, and a form never so dangerously inadequate as in recent times, during which some groups have been far too fertile and others too sterile. A theory of value is offered: individual as standard, society as means, and all individuals as end. The individual as standard is an intellectual being whose good is rhythmic balance. The implications are effectively brought out in diverse directions, and there are searching evaluations of traditional resources for implementing the values that our present stage of evolution demands if the species is to survive and flourish.

Jordan rightly puts stress upon the novelty, in all the living world, of modern man's problem, since only he has intelligent choices to make concerning the whole pattern of his social existence. Like Dewey, he points to the harm done by the notion of eternal or fixed values and moral rules. However, there does seem in Jordan's own thinking to be a sort of eternal generic principle of value, something like that of interdependent balance, to be actively sought by the members of a society for their own and one another's sake. This I suppose religion at its best to have meant by "love." And Jordan suggests that the eternal values which Jesus taught as such were those involved in being social in the fullest sense, that is, in being without hypocrisy, vainglory, greed, but with lively and sacrificial (because inevitably partly tragic) interest in the real and never wholly satisfied needs of others, as though they were one's own, along with deep gratitude to the cosmic life by which our own is sustained and in which our goods are integrated into an inclusive good which, though growing, is incorruptible.

This book should, I think, be read by all who are seriously interested in ethics or cosmology. It offers many significant thoughts, well expressed and deeply serious, with a sense of urgency in view of our world troubles and the radical novelty of so many of our problems, calling, as he correctly holds, for intellectual and moral rebirth.

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THE CONDITION OF MAN. By Lewis Mumford. New York: Harcourt, Brace & Co., 1944. Pp. x+467. $5.00.

Technics and Civilization was an important overview of the cultural implications of technological development somewhat overburdened with terminological fussiness. *The Culture of Cities* was a set of variations on a specialized theme saved from pedantry by the humanism which one could read between the lines. *The Condition of Man* is the oily flow of the self-conscious humanist turned philosopher of history. It fails through overstatement to make the point which *The Culture of Cities* made so well by understatement. Like Hamlet, Mr. Mumford succeeds best through indirection.

These three studies fall within a common frame and, as Mumford says, "seek to exemplify in method and plan the doctrine of organic humanism that underlies them." "Organic humanism" is not quite the right phrase. Technological humanism or perhaps organic technicism would be a better description of the spirit of his work. For Mumford, though critical of the excesses of the scientific point of view, is not, like the Renaissance humanists, irreconcilably antagonistic to science. Try as he may, he cannot escape from the machine, and so he represents the ambivalence of a man with a dual passion for mechanics and the forces of life. His is the uneasiness of a mechanical engineer who spends all his leisure time reading Bergson!

I dwell upon this aspect of Mumford's work because it seems to me to be so characteristic of the way in which men of our age seek to overcome the dualism between the mechanism of the eighteenth century and the vitalism of the last decades of the nineteenth. In this respect there seems to be some analogy between the underlying spirit of a critic like Mumford and that of the infinitely deeper and more subtle work of a philosopher like Whitehead. For Whitehead, too, there has always been the compulsion to unify the concepts of mechanical force and personal feeling. I was never able to make much of his philosophy until I saw it as a synthesis of the classical physicists and the Romantic poets. It is exactly what you would expect from a man who happened to be reading Newton's *Principia* and the poetry of Wordsworth at the same time.

But to return to Mumford. *The Condition of Man* is a work of criticism; its author a critic of modern society. In this book he appropriates the materials of history as a device to overcome the illness of the present age. "People whose course of life has reached a crisis must confront their collective past as fully as a neurotic patient must unbury his personal life: long-forgotten traumas in history may have a disastrous effect upon millions who remain unaware of them." Mumford's cultural psychotherapy is based upon these premises: (1) the neurosis of the modern world is schism, division, confusion, disintegration; (2) the end of "our" therapy must be to restore unity to modern man and modern society; and (3) historical analysis will reveal the traumas wherein the modern soul has gone astray.

The long sad saga of failure begins with the classical world and continues to the present: Greek aristocracy and inferiority of women, medieval rationalism, fourteenth-century capitalism, Renaissance power politics, seventeenth-century science, breeding social atomism and uniformity, eighteenth-century rationalism and sentimentalism, nineteenth-century utilitarianism and racialism, twentieth-century fragmentation and decay. One by one, the skeletons in the closet of Western man are revealed. Mumford does it with the air of a detective unveiling a mystery. But the plot is plagiarized. Mumford's closet of history has long been a much-visited museum.

In the last chapter the psychotherapist becomes an old-fashioned spiritual adviser. Return to the sources of life! Piece together the fragments! For the symbol of the machine substitute the symbol of the organism! Abandon your Freud, Marx, Spengler! Take unto yourselves good Americans—Thoreau, Emerson, Whitman, Melville! ("The insights of these writers will be as significant for a new period of integration as the work of Plato and Aristotle was in the formulation of the new truths of Christianity.")

In the end Mumford, like all humanists, implicitly pays his debts to the Greeks—above all, to Plato.

The ideal personality for the opening age is a balanced personality; not the specialist but the whole man. Such a personality must be in dynamic interaction with every part of his environment and every part of his heritage. He must be capable of treating economic experiences and esthetic experiences, parental experiences and vocational experiences as the related parts of a single whole, namely, life itself. His education, his discipline, his daily routine must tend toward this wholeness. To achieve this, he must be ready to spurn the easy successes that come, in a dying culture, through self-mutilation.

Exactly. But how achieved? It is here that Mumford is weakest. It is here that he joins the ranks of the theologians and sermonizers (like Hutchins and Maritain). Inner conversion, moral regeneration, is hardly a task to be accomplished by mere exhortation, whether from pulpit, lecture platform, or polite essay—nor can it be separated from institutional base and the conditions of livelihood. Ultimately we are again faced with the difficulty of the psychotherapist. Mumford exhibits our neurosis. But, after it is pointed out, we are still stuck with it. Mumford's book reminds me of the story of the two men who were about to take a trip in an airplane. Just before the plane was to take off, the pilot appeared, slightly the worse for alcohol. One of the prospective passengers said to the other apprehensively, "Do you think he can fly us in his condition?"

"Hell," said the other, "if he can fly a plane at all, he can fly us. That *is* his condition!"

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ARISTOTLE'S CRITICISM OF PLATO AND THE ACADEMY, Vol. I. By Harold Cherniss. Baltimore: Johns Hopkins Press, 1944. Pp. xxvi+610. $5.00.

Aristotle's criticisms of Plato and Platonism have been a perennial puzzle to historians of Greek philosophy, and many have been the attempts to solve it. But never has the attempt been made with a more promising method, or a richer equipment of relevant erudition, than are employed in the present work. Cherniss' earlier volume, *Aristotle's Criticism of Presocratic Philosophy* (Baltimore, 1935), set forth and applied what seems the appropriate method of attack on the general problem of Aristotle's reliability as a historian and critic of philosophy. That method is to examine *all* the Aristotelian statements and criticisms, and to examine them in their several contexts in Aristotle's writings, for the purpose of discovering the general tendencies and characteristics of Aristotle's use of his predecessors' doctrines. The present work is a continuation of that earlier study. Cherniss' final conclusions will not be before us until the second volume appears. But in the last chapter of the volume on the Presocratics, he sets down certain characteristics of Aristotle's method that seem to be clearly indicated by the evidence thus far collected. It seems that one major purpose of Aristotle's citations of his predecessors' views is to develop dialectically his own philosophical doctrines; that he often wilfully misrepresents his predecessors by suppressing an important part of their doctrine for the sake of his immediate purpose, while reversing the process in other contexts when another purpose is dominant; that he often accommodates and reinterprets, while adhering to the letter of the doctrine discussed, seeking to find in it a convenient antithesis to his own views or an anticipation of them; that he generally applies his own concepts to a problem which had been conceived by his predecessors in quite different terms; that he is frequently guilty of "unadorned misunderstanding," owing to misreading, or failure of memory, or acceptance of the interpretations of others, or to any one of the previous causes. Suspicion that Aristotle's testimony is defective in one or more of these respects has often been voiced with regard to particular issues and thinkers, and hence Cherniss' results are not by any means novel. Their importance lies in the impressive array of evidence he adduces to show the extent to which these defects pervade the entire body of Aristotelian testimony and criticism bearing on the doctrines of the Presocratics.

These tentative conclusions as to the character of Aristotle's criticism are amply confirmed by the evidence accumulated in the present volume. Here we are dealing, in the main, with his statements about the doctrines contained in the Platonic dialogues and are therefore far better equipped to check his accuracy than when he is discussing the Presocratics. The obscure question of the Idea-Numbers, which is supposed to be the later form of Plato's Theory of Ideas, and of which there are few if any traces in the dialogues, is to be taken up in the second volume. The present volume deals with Aristotle's criticism of Plato's logical doctrines (dieresis, definition, and demonstration) and with that form of the Theory of Ideas which we find in the dialogues and which, as Cherniss

shows (pp. 194–98), was regarded by Aristotle as the original form of the theory. Cherniss' treatment of the Aristotelian passages amounts in each case to an elaborate commentary and exposition, not only of the Platonic and Aristotelian texts, but also of the voluminous literature that has collected about these texts since the days of the early Academy. A short review cannot hope to make a detailed appraisal of this wealth of commentary. All that can be done is to express general satisfaction with the methods used and the results obtained and to show the character of the latter by citing a few illustrations of the kinds of misrepresentation of Platonic doctrine that Cherniss finds in Aristotle.

Let us take, first of all, some instances of "unadorned misunderstanding." The clearest cases of this are to be found in references to the *Timaeus*, such as the statement that Plato gives the soul local motion and ascribes magnitude to it (pp. 402, 412) and the criticism of Plato for having the universe created in time, when Plato distinctly says that time and the universe are coeval (pp. 415–17). Aristotle asserts that Plato gives no final cause for respiration, whereas not only is the purpose of the process given in the *Timaeus* but that purpose is in part at least similar to the one alleged by Aristotle himself—the cooling of the heat within the body (pp. 455–59). Aristotle twice asserts that in the *Timaeus* Plato said that χώρα is ὕλη, although there is no such statement in the *Timaeus*, nor any use of ὕλη in the sense of "matter" (p. 121).

Wilful misrepresentation seems to be involved in his criticism of Plato's theory of weight, which completely neglects what is expressly given in the *Timaeus* as the explanation of weight and substitutes for it a theory constructed from a single passing remark in another passage of the *Timaeus* (pp. 138–39, 161–65). Similarly Aristotle sometimes asserts that the Platonic theory says nothing about an efficient cause of change, yet elsewhere criticizes certain elements in that theory which he regards as unsuccessful attempts to explain movement (pp. 383–96, 450–52).

Again Aristotle reads his own meanings into Platonic terms. For example, the Receptacle of the *Timaeus* is treated as if it were Aristotle's own prime matter *manquée* (pp. 165–73); Plato's τόπος is regarded as the equivalent of Aristotle's "local position" (p. 115); and when Plato is quoted, with approval, as saying that there are ideas of those things that exist "by nature," the phrase is interpreted in Aristotle's, not Plato's, sense of "nature" (pp. 239–57). Plato's ideas are assumed to have the philosophical function of Aristotle's "formal cause," and, in spite of Plato's explicit refusal to reduce motion to factors other than motion, Aristotle examines the Platonic doctrine of motion solely from the standpoint of his own analysis of motion into matter and form (pp. 403–14).

Closely related to the foregoing is Aristotle's habit of developing what he thinks to be the necessary consequences or necessary antecedents of Plato's statements, thereby reconstructing the Platonic doctrine in accordance with his own conception of its real meaning and intention. A striking example is his representation of the nature of Platonic matter in *Physics* A as τὸ μὴ ὄν, or absolute nonbeing; and again as τὸ ψεῦδος, the false (pp. 94–100). In so doing, he gives μὴ ὄν a sense which Plato in the *Sophist* insists no one must understand him to mean by it. Cherniss will doubtless argue, in his second volume, that the famous theory of Idea-Numbers is just such a reconstruction by Aristotle of what he thought the Platonic Theory of Ideas, or certain versions of it, must have meant.

Nor does Aristotle scorn the use of dialectical devices to score a point against the Platonists. The *Topics* describes certain arguments useful "against those who say there are ideas." Thus Plato's inclusion of "mortal" in the definition of "animal' could be attacked on the ground that the Idea "animal" is not mortal. In this way all definitions of things that have active or passive characteristics could be attacked as attributing properties at variance with the impassivity and immobility of the corresponding Ideas (pp. 1–5). Another example of a dialectical device is brought to light by Cherniss' brilliant and novel exegesis of *Metaphysics* A 990*b* 15–17, where Aristotle argues that the Platonists' admission of ideas of relations contradicts their doctrine that the ideas have absolute being (pp. 279–83). The force of this criticism depends entirely upon the ambiguity in the terms "absolute" (καθ' αὑτό) and "relative" (πρός τι). Perhaps here, however, we have an instance of an ambiguity which even Aristotle's subtle mind did not catch; just as he himself seems to have become entangled, in the exposition of his own views, by the ambiguity of the term "separate" (χωριστόν).

What, furthermore, are we to think of Aristotle's use of arguments against Plato that would be equally embarrassing to himself? He often argues that the Ideas, if separate and

immobile, cannot cause motion; but this argument is certainly destructive of his own doctrine of the Unmoved Mover (p. 460). The objection that such separate and immobile Ideas cannot be a final cause would equally disqualify his own Unmoved Mover from being such a cause. He scorns the Platonic terms "model" and "participation" as only metaphors; yet his own explanation of natural reproduction (his favorite illustration of the action of form on matter) comes to much the same thing, since the "contact" of the actualized form in the parent with the matter in the *catamenia* is figurative at best (pp. 470–74). His own explanation of the action of the Prime Mover on the sense world is explicitly metaphorical: *κινεῖ ὡς ἐρώμενον* (pp. 461–66).

These are only a few random items selected from the store of material brought together in Cherniss' book. One general criticism needs to be made. Cherniss is often strangely assured as to the accuracy of his own version of Plato's doctrine—more assured than anyone really has a right to be, considering the dramatic nature of the dialogues and the controversies which they have aroused ever since the debates among Plato's immediate successors. It should be added that Cherniss' interpretations of Plato are usually convincing, and they are fortified by an amount of erudition concerning the Academic and Neo-Platonic commentators that many who have spoken with similar assurance about Plato have not possessed. Aristotle's authority on these geniunely disputable matters is necessarily diminished by the evidence of his carelessness, or lack of candor, or lack of sympathy, in those cases where the facts as to what Plato said are not in doubt.

There is much to be added before the evidence is all in, and we shall look forward with eagerness to the second volume of this work. In the meantime, those who are inclined to be skeptical of Cherniss' case against Aristotle would do well to read the articles by Bornemann in *Philologus* (LXXIX, 70–111, 113–58, 234–57) on Aristotle's criticisms of Plato's political doctrines. Or let them read the *Politics* again and ask themselves what opinion we would form of the content of Plato's *Republic* and *Laws* if we had to rely solely upon the testimony of Aristotle.

Where does this leave us? Our most important authority, other than Plato, for the history of Greek philosophy has been shown to be persistently and often capriciously unreliable. This means that we must view with increased skepticism all those parts of that history, as hitherto reconstructed, that are dependent upon Aristotle's text, or upon the doxographical tradition that stems from him and Theophrastus. It means that we need feel less hesitation in going to the dialogues for our interpretation of Plato, since Aristotle's version is only one reconstruction, privileged in some respects no doubt, but deserving far less deference than has usually been accorded it. And obviously Cherniss' books and his results will have to be taken into account in any future work that pretends to be serious dealing with either Plato, Aristotle, or their predecessors.

Since this is so, it is regrettable that Cherniss did not put his results in more easily accessible form. The very thoroughness of his inquiry means a tremendous mass of commentary, documentation, and minute argument. It is not easy to organize such material, but something more could have been done. Certainly the excessively long paragraphs could have been broken up; chapter and section divisions could have been more numerous; and the eleven appendixes, covering more than a hundred pages, could have been furnished with titles giving some clue as to their contents. But it is only fair to state that this work has been brought through the press while its author is in the armed forces. The second volume will presumably appear under more favorable circumstances, and we can hope that it will be free from some of these handicaps of organization and exposition.

GLENN R. MORROW
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PRINCIPLES OF SYSTEMATIC PSYCHOLOGY. By Coleman H. Griffith. Urbana, Ill.: University of Illinois Press, 1943. Pp. vii+718.

The *Principles of Systematic Psychology* is no mean achievement. It is over seven hundred pages in length. In addition to covering the major fields of psychological thought and experiment, it includes considerable pointed discussion of related fields, such as philosophy, sociology, education, biology, and anthropology. And it does this job in a manner that leaves the reader with the definite impression that the author has read with discrimination and insight as well as extensively.

As might be inferred from the title, the book is analytical-critical as well as constructive in

intent. It contains a systematic analysis and critical review of the main systems of human-nature theory as well as an attempt to "derive" the principles of the science of psychology. In commenting on it, it will be convenient to follow this natural line of cleavage.

Professor Griffith's classification and discussion of the systems is prefaced by several instructive chapters devoted largely to a consideration of the major "points of reference" in human-nature theory. These points of reference are discussed under two general headings: "ontological" and "methodological." Griffith distinguishes eight ontological points of reference and six methodological. The ontological are behaviorial-mentalistic, analytic-configurational, functional-existential, and determined-free. The viewpoints concerning method are rational-experimental or scientific, genetic-static, and individualistic-social. The assumption of the author is that these cardinal points of reference represent available options between which the system-maker must choose. The construction of a system accordingly involves a series of decisions resting on one consideration or another.

The author considers the various human-nature theories under seven general headings: structuralism, configurational psychologies, empirical behaviorism and functionalism, functionalism and the genetic point of view, radical behaviorism, the physiological psychologies, and psychoanalysis and adjustment. On examination it turns out that each of such systems represents a "pattern" of the points of reference. Structuralism, for instance, is analytic rather than configurational. It is mentalistic rather than behavioristic.

It would be eminently worth while to examine in some detail Griffith's critical analysis of each of these systems. But to do so would require much more space than is available here. Suffice it to say that, in the judgment of the writer, students of philosophy, anthropology, sociology, and so on can profit considerably by a careful scrutiny of the author's exposition and analysis of these human-nature theories.

The purpose of the book is predominantly constructive rather than critical. It is that of deriving the *principles of psychology* rather than that of demolishing the extant systems. The execution of this task naturally entails a series of decisions regarding the options available.

The system or "pattern of points of reference" with which Griffith emerges he usually calls "operational or methodological behaviorism." It rejects in favor of the behavioral the mentalistic option. As between the analytic-configurational options, it rejects the former in its ontological meaning if not in its methodological connotation. It is a functionalism rather than an existentialism. It adopts the genetic rather than the static point of view.

The book has an unusually exhaustive bibliography and author's index. It is well organized; it hangs together. And while the author apparently has a preference for oblique forms of expression, he is reasonably easy to follow. The book should see considerable use as a reference work. In fact, the writer would recommend it highly for such purposes. Its strongest point in reality is its excellent coverage of the psychological field.

The *Principles of Systematic Psychology* is by the nature of its subject matter, organization, and methodology a difficult book to review in the space allowed. The meat of the book, its argumentations, its logical analysis, and its use of the experimental data, both for critical and for constructive purposes, must be left out. My remarks consequently pretend to have done little more than characterize it by touching lightly on its high points.

GEORGE GENTRY

University of Texas

NATURALISM AND THE HUMAN SPIRIT. Edited by Yervant H. Krikorian. New York: Columbia University Press, 1944. Pp. x+397. $4.50.

It is an event of no mean significance when fifteen contemporary American philosophers collaborate in the writing of a volume of essays under the common designation of "naturalism." But just what the significance of this collaborative endeavor is, is not at first sight entirely clear. Certainly we do not here have any such attempt at developing a single philosophical position in a technical sense as was represented by the volumes *The New Realism* or *Essays in Critical Realism*. Though J. H. Randall, Jr., in the last essay in the book here considered makes a most valiant effort to find a unity in the variety of naturalisms expounded, the best he can do is to discover "a community of temper, of method, and even of general outlook, rather remarkable in any group of writers so crotchety and individualistic as professional philosophers" (p. 355). This community of outlook is expressed

on its substantive side by the denial of supernaturalistic dualisms without, however, the assertion of any reductionistic materialism; on the procedural side it is expressed by the claim of the universality of scientific method. There is no doubt that Professor Randall is right in claiming a common emphasis through these essays upon faith in scientific method (a claim likewise made by the editor in his Preface). But even in this there is ambiguity, which is the basis not merely of a real difference between essayists but of downright confusion of thought in some of them (e.g., in the defense of sociological analysis of knowledge by Dr. Thelma Lavine). The contention may be simply that scientific method is the most reliable method of gaining knowledge and that any attempt to protect any region or type of fact (specifically, human minds and valuations) from its application is illegitimate and obscurantist. But this (I think wholly just) contention is different from another also put forth: that scientific method is the *only* legitimate method, that therefore philosophy has no problems or procedures peculiar to it, and that philosophy, as distinct from the special sciences, cannot properly claim to be knowledge.

The differences and confusions on this issue in the present volume are not wholly unrelated to a less recondite issue: for what readers and with what objectives in mind were these essays written? At one extreme are the contributions of John Dewey and Sidney Hook, obviously directed toward the philosophically lay reader and designed to disabuse him of any favorable inclinations toward antinaturalism engendered by the recent increase in propaganda from obscurantist sources. At the other extreme are such essays as those of Ernest Nagel and William R. Dennes, which, in applying operationism to logic and positivism to categorial analysis, could certainly not be understood by the ordinary lay reader. This difference of objectives may have a dulling effect in the reception of the volume. The lay reader, anxious to decide as to whether the present crisis of civilization is due in part to too great a trust in science and too much of a loss of the older faiths in religion and morality, will find himself baffled by the more technical essays. On the other hand, the professional philosopher (like myself) may discover himself quite in sympathy with the popular naturalism of, say, the essays of Dewey and Hook, and yet in basic disagreement with the operationism of Nagel or the positivism of Dennes. It is in the interest of maintaining a common front against all forces of obscurantism while yet maintaining complete freedom and honesty of thought and expression that the two objectives so confusingly combined in the book here reviewed be kept as distinct as possible.

EVERETT W. HALL
State University of Iowa

SHORTER NOTICES

A PREFACE TO LOGIC. By Morris R. Cohen. New York: Henry Holt & Co., 1944. Pp. xi+209. $2.50.

One useful function served by a preface is that of indicating the attitudes in terms of which the author approaches his subject. From this standpoint, the title of this collection of essays (several of which have been previously published) is well chosen. For Morris Cohen, here as in his other published work, far from being a mere expert in logical techniques, is always a passionate advocate for a realistic philosophy *of* logic. Those whose main interest is in the improvement and application of logical methods may find Cohen's treatment of still debatable issues (notably in probability theory) disappointingly fragmentary or perfunctory. They may feel, like the reviewer, that failure to make a familiar distinction between verification and verifiability invalidates much of the vigorous polemic against positivism and that the notion of a universe of discourse is too obscure to have much explanatory force in these days.

As the argument moves from the alleged circularity of the syllogism to the follies of the inductive logicians, and from the nature of symbolism to the objectivity of ethical judgments, such dissenting marginalia accumulate. Yet the book has virtues often absent from more pretentious, elaborate, and careful treatises. Its author—because he has never succumbed to the self-inflicted myopia of the fashionable linguisticisms perhaps—has an unfailing flair for the important questions connected with the status of logic and its relation to other modes of knowing. It is permissible to doubt whether such a formula as "logical relations may be viewed ontologically as the invariants in the transformations of all possible

objects" provides quite so much illumination in the long run as Cohen supposes. But the important questions are, at any rate, presented and discussed with an earnestness and a pungency of expression that must command respect. This would be an excellent book to put into the hands of a young philosopher; it would have to be a very exceptional student of logic who had nothing to learn from reading this book—and a hopelessly stolid man who failed to enjoy the experience.

MAX BLACK

NATIONAL CULTURES, NAZISM AND THE CHURCH. By Andrew J. Krzesinski. Boston: Bruce Humphries, Inc., 1945. Pp. 128. $1.75.

Professor Krzesinski, a Polish Roman Catholic *émigré*, has written a series of effective propaganda books of the better sort to lay before his co-religionists in the United States an account of the attack of the National Socialist state upon the Christian religion. In the volume under review the author argues that the Roman Catholic religion has greatly enriched the national cultures of Europe and the Orient. He deplores each and every attempt on the part of national groups to sever the vital link with the church. The German Third Reich provides an example of a modern state which has completely broken with its religious heritage. The volume contains a brief documented survey of the anti-Christian utterances of Hitler, Rosenberg, and others. The most gripping of the chapters tell of the atrocities committed against Polish Roman Catholicism. From a few scattered references one gathers that Father Krzesinski looks upon Soviet Russia not as a powerful ally but rather as a state which has broken with the Christian tradition. In closing, he seeks to make a contribution to world order by urging the nations to make their peace with Rome.

JAMES B. HODGSON

BORDEN PARKER BOWNE'S TREATMENT OF THE PROBLEM OF CHANGE AND IDENTITY. By José A. Franquiz Ventura. ("University of Puerto Rico Bulletin," Vol. XIII, No. 1.) Rio Piedras, P.R., September, 1942. Pp. xvi+260.

This is a revised version of the author's doctoral dissertation for Boston University. After tracing the eventful history of the metaphysical problem from the Rig-Veda to Lotze, Ventura develops Bowne's treatment through voluminous quotations under the headings of "Psychology, "Logic," "Epistemology," and "Metaphysics." Two short chapters following show Bowne's position on the "one-many" problem as he specifically applied it to religion, theology, and political philosophy. The treatment is friendly and enthusiastic. The negative criticisms are confined largely to pointing out vagaries and inconsistencies. The author is apparently of the persuasion that these have been satisfactorily corrected by Brightman.

FRANK B. EBERSOLE

THE SCHOOLS OF VEDANTA. By Nagaraja Rao. Bombay: Bharatiya Vidya Bhavan, 1943. Pp. 136. Rs. 21.

This book is especially intended as an introduction to the thought of those great figures of the Vedanta School: Sankara, Ramanuja, and Madhava—at any rate, so the Introduction says. However, the author is led so far aside into a sketch of the general history of the Indian philosophical schools and of the religious literature—which he draws up against a caricatured contrast of Western corruption—that only a few pages remain for the proper job. If it were much of an introduction to the Vedanta schools, the style would make it an admirable one.

FRANK B. EBERSOLE

CONSERVING MARRIAGE AND THE FAMILY. By Ernest R. Groves. New York: Macmillan Co., 1944. Pp. 138. $1.75.

This book might prove helpful to that rare person who could read himself out of an annoying domestic situation. It consists of a series of plain talks to the would-be divorce-court customer, discussing all sides of the most likely difficulties and weighing the decision to be made against a "realistic" and "liberal" view of divorce, i.e., one not so radical as Bertrand Russell nor so conservative as Felix Adler. The purpose of the book, however, is not to present his attitude on divorce but to supply a substitute counselor—in book form.

FRANK B. EBERSOLE

HUMANISM AND THEOLOGY. By Werner Jaeger. Milwaukee: Marquette University Press, 1943. Pp. 96. $1.50.

Jaeger presents here a hasty history of ancient and medieval culture, tracing the develop-

ment of modern humanism (F. C. S. Schiller) and classical humanism (Cicero, Erasmus, Babbitt) from their respective originals in the Sophist anthropocentric *paidcia* and the Platonic theocentric *paideia*. Augustine and Aquinas, he holds, represent true, Christianized "revivals" of the Platonic and Aristotelian ideal of education founded in rational theology.

FRANK B. EBERSOLE

MORALITY AND HAPPINESS. By Lan Freed. Foreword by Leonard Woolf. London: Williams & Norgate, 1944. Pp. 80. 5s. net.

Mrs. Freed here reads a lecture to, almost delivers a homily against, "the moralist." Apart from the diverting histrionics, there remains a serious aim, enthusiastically pursued, to identify "interest" and "oughtness." The moralist is he, any he, who attributes to "oughtness" some meaning over and above possession and/or pursuit of happiness. Psychological hedonism is amended to hold that no conscious choice is "not in conformity with the pursuit of happiness," that "no motives incompatible" with hedonic aims "are at all conceivable." The author's reliances for resolving obligation into present "interest" are a social sense that does as a matter of fact make others' happiness a means to, or an ingredient in, one's own happiness, an imagination which puts one into the place of another, and the advance of science which is substituting for chronic lacks of most men potential plenty for all men. The autonomous or disinterested "ought" of man has arisen from human lacks, has functioned as consolation for desires that had to be crucified in order to be endured. Natural as the "Great Moral Muddle" (as she calls "disinterested" action) was when happiness could not by most men be attained, it is no longer necessary to paralyze ourselves with the basic paradox of conscience, "Do what you don't want to do and the result will surprise you." With means of satisfaction at hand, modern men, she thinks, "ought" not to acknowledge any *oughts* save (1) to be happy and (2) to be happy together. And yet the book was written and published in wartime. This is audacity or faith, as indeed it is also the verve which characterized the early Utilitarians. Speaking professionally, a good deal of coal is here carried to Newcastle, but, humanly speaking, the author dances the whole distance along; for, as she concludes beamingly, "we have a world to build."

T. V. S.

ART, THE CRITIC AND YOU: A DECLARATION OF INDEPENDENCE OF TASTE IN MATTERS OF ART. By Curt J. Ducasse. New York: Oskar Piest, 1944. Pp. 170. $2.00.

This little book is a model for one aspect of the responsibility of the scholar. He is a citizen and as such owes to as many men as possible both the fruits and the tang of his toil. Professor Ducasse has here explained to a larger audience the ripened conclusions of his earlier more technical book, *The Philosophy of Art*. He has done this with no condescension but with sustained interest in this less specialized but more citizenly endeavor. The emphasis of the book, therefore, falls as much on the subtitle as upon the main title. A master of lucid exposition, an adept at illustration, and an exemplar of independence, Ducasse here achieves a work of democratic art: in intent, in form, in compass, and in clarity. I do not know of a book which would be better to commend to students to recommend to their fathers and mothers, and especially to their mothers. Not even the last chapter, on cosmetic art, "The Art of Personal Beauty," has anything of depreciation in it. All is intended to clarify the general subject and to do this in such guise as will stimulate growth of the aesthetic through exercise of the aesthetic in the wholesome atmosphere of the philosophic.

T. V. S

PHILOSOPHIC FOUNDATIONS OF QUANTUM MECHANICS. By Hans Reichenbach. Berkeley and Los Angeles: University of California Press, 1944. Pp. 182. $3.00.

On the basis of the author's definition of physics as "the analysis of the physical world" and of philosophy as "the analysis of our knowledge of the physical world" this book is properly about both physics and philosophy. Part I is primarily philosophical. It presents the general ideas on which the quantum mechanics is founded and purports to presuppose no knowledge either of mathematics or of the methods of quantum physics. This latter claim involves some exaggeration; nevertheless, the book is admittedly an unusually successful attempt to present the subject with a minimum of tech-

nical terminology. Part II develops the mathematical methods of quantum mechanics. Part III, which rests upon the ideas of the other two parts, presents the philosophical interpretation of the theory; it is here that the author applies his three-valued logic, developed in earlier writings, to the new physics. This constitutes, I should suppose, the distinctive contribution of the book.

He claims that quantum mechanics constitutes a special case of the general problem, "How do things look when we do not look at them?"—to which there can be no answer based on inductive evidence. We might insist, then, that all statements about such unobservables are meaningless. However, then we could not operate upon them logically. Consequently, since we wish to make inferences based upon the connections between these statements and statements about observed entities, we need a logic which will provide the necessary rules. The statements in question should be characterized, therefore, not as meaningless nor (since they are unverifiable) as either true or false but as indeterminate. The introduction of this category requires a corresponding modification of the traditional true-false system of logic.

A. Cornelius Benjamin

An Introduction to Philosophy. By W. A. Sinclair. New York: Oxford University Press, 1944. Pp. 151. $1.50.

Among the almost innumerable introductions to philosophy, this latest has two distinctions. It is brief and it is strategic. Its brevity distinguishes it from most and its strategy from all introductions which I know. Instead of telling what the problems of philosophy are, or indeed instead of showing how philosophers have described and attacked them, this author works the reader, without tricks but with adroitness, into the predicaments which constitute the problems. Then and then only names he the problems and marshals the authorities. I know of no comparable success in beguiling the reader to learn philosophy by philosophizing. Sinclair emphasizes the problem of knowledge, as did Bertrand Russell in the most likely British predecessor of this book, *The Problem of Philosophy* ("Home University Library"); but epistemology turns out here, much more than there, to be but the reader's own self-searching (with an ingeniously developed coherence theory of truth as reward).

T. V. S.

The Dream of Descartes. By Jacques Maritain. Translated by Mabelle L. Andison. New York: Philosophical Library, 1944. Pp. 220. $3.00.

I find this the most readable of Maritain's books and also the soundest. And why not? For, of all modern thinkers, Descartes is, I should suppose, the one whose departures from medieval metaphysics are the most uniformly erroneous. What doctrine invented by Descartes, outside of his mathematics and some of his views concerning physics (and his greatness here is not contested by Maritain), can be defended as it stands? His dualism? His proofs of God? His monistic method, claiming to unite metaphysics and the basic laws of physics in a single intuitive-deductive system? As Maritain shows, the list of such errors is long. And they all, as he brilliantly explains, derive from Descartes's dream-vision of himself as the single-handed creator of a new universal science, while his ambiguities and contradictions derive partly from his effort to continue on good terms with orthodoxy. Maritain, of course, believes that the medieval synthesis was lost to the modern world chiefly through Descartes's influence. We may grant that much in modern thought suffers from Cartesian errors, more or less attenuated, exaggerated, or disguised, without concluding that Aquinas is the only, or the best, alternative to Descartes.

Charles Hartshorne

The Adventures of the Young Soldier in Search of the Better World. By C. E. M. Joad. New York: Arco Publishing Co., 1944. Pp. 154. $2.00.

With wit, satire, and challenge, Professor Joad makes an exciting excursion in practical philosophy. In following the adventures of the young soldier looking for a better world, the reader is brought face to face with the central problems of reconstructing the postwar world. Professor Joad has no sympathy for cynicism, sadistic destruction of Germans, bureaucrats, spiritualists, and cultists—each strikingly represented by half-human, half-animal creatures,

and crisply illustrated by the line drawings of Mervyn Peake. Mr. Ema (Education for the Masses) and Miss Ame (Ministress for the Amenities) turn out, along with the Marxist, to be more acceptable, although they are a bit on the bread-and-buttery side. In contrast, the philosopher inveighs against the all-or-none doctrines and the dogmatism of the young soldier's would-be mentors. Deftly, he proposes federalism for the nations of the world, education for leisure, and a hearkening-back to man's spiritual nature—faith, but faith with works. This practical philosophy ends with the philosopher being merely a signpost, a critic rather than a reformer of the world.

BERTRAM MORRIS

VLADIMIR SOLOVIEV'S LECTURES ON GODMANHOOD. With an Introduction by Peter Zouboff. New York: International University Press, 1944. Pp. 233. $3.75.

Soloviev's religious metaphysics has similarities to the philosophies of Hegel and the later Schelling, especially the latter. I do not myself doubt that there were glimpses of ultimate truth in all these men, but I suspect that equivalent and clearer glimpses are to be found in more recent writers. There is perhaps not much in Soloviev that is not more intelligibly expressed by Lossky or Berdyaev; or in the later Schelling not more simply and unequivocally contained in Fechner, or more rigorously and elaborately worked out in Peirce and Whitehead. The point is that the nineteenth and twentieth centuries have been engaged on the single task, in metaphysics, of finding an alternative to the often lauded but, when judged by candid searching minds not under the spell of medieval institutions, hopelessly unconvincing and inadequate medieval synthesis. Spinoza and Leibniz tinkered brilliantly and suggestively with the medieval view; Hume and Kant refuted it; but only since Kant has the job of replacing it been adequately faced. Why expect perfection of the pioneers? One honors them but, except in the role of historian, may not have to study them.

Soloviev, however, was a heroic and touching figure. That Dostoevski and Tolstoy heard him lecture illustrates nicely the somewhat indirect way in which philosophy contributes to general culture. His most striking doctrine is that of the Sophia or world soul, which unites in itself the eternal God and the temporal world. This is, indeed, a common trait of every significant philosophical theology since Kant, the perception that one cannot simply juxtapose God and the world as cause and effect but must give an account of reality as God-and-the-world, a total which is neither mere originating nor mere originated being, but both in one (though, of course, not both in the same aspect), and greater than either alone.

What Soloviev seems both to see and yet not quite to see is that the creator apart from all creatures is an abstraction, while the concrete deity can only be God enjoying his creatures as a result of the creative act or acts. This does not mean, in spite of Spinoza, that the particular creatures are necessary, for then any abstraction of creating from created would be self-contradictory, would result in an absurdity and not just an abstraction. Rather, the creator, though he *must* create *somehow*, is free as between alternative possible hows, and we can abstract his necessary and eternal essence by leaving unspecified *which* of the possible creations, and corresponding accidental states of the creator-enjoying-the-creatures, is actualized. In short, Sophia is the consequent nature of God, who is immutable and independent only in his essence, an abstract aspect of his total being. Soloviev, like Plato in the *Timaeus*, seems to think the concrete inferior to the abstract, whereas the latter, being arrived at by omission, is necessarily less than the former.

Soloviev illustrates an advantage of Russian orthodoxy, as compared to Roman Catholicism, in that it is less rigidly bound to the medieval error of trying to exalt God by conceiving his nature in sheer abstraction from particularity, contingency, and change, while claiming absolute concreteness for his nature. Soloviev's apparently unsuccessful attempt to bridge the gap between Russian and Roman Catholic churches has also instruction for us.

The translation is not easy to read, but the task no doubt was difficult. There is an extensive bibliography.

CHARLES HARTSHORNE

THE NATURE AND ORIGINS OF SCIENTISM. By John Wellmuth. ("The Aquinas Lecture," 1944.) Milwaukee: Marquette University Press, 1944. Pp. 60. $1.50.

The author does not like science as philosophy. He does like Neo-Thomism as philosophy. He gives a lecture to recommend his likes and

puts in it a book to disrecommend his dislikes. But to confound such dual simplicity, he argues that if the goal of knowing (the definition of knowledge) be certainty, then scientism has failed. And with it modern philosophy too; for, as ordinarily conceived, modern philosophy (following and debasing Descartes) is either scientific and so devoid of certainty or is autonomous with a lower order of certainty than science itself. By nature, then, "scientism" is probabilism, and its origins are in sin. Thomism as the true philosophy early struggled with the roots of scientism—and failed. Why failed? The author says that it was because Thomism was not given a trial (p. 48). But why was it not tried? Deponent sayeth not, or sayeth not frankly. (But, of course, the intellectual, like the natural, world is full of sin.) What the author does say, collaterally, is that there was a failure of nerve leading to "the breakdown of medieval philosophy" two centuries before the age of modern science (p. 19). There was indeed, as he puts it, "a gradual loss of confidence in the power of the human mind." Now the etiology of that "loss" would be a worthy theme for the weightiest lecture, especially one on an Aquinas foundation. For how could it well be otherwise when philosophy, potentially the freest adventure of the human spirit, becomes either apologetics, as the successive exhibits on this lectureship are, or what Thomism itself is (when it is not also apologetics), namely, the corporate reinforcement of a claim to certainty unable logically to make its way on its own weight save in sectarian circles?

T. V. S.

TEXTS AND STUDIES, Vol. II: SAADIA ANNIVERSARY VOLUME. New York: American Academy for Jewish Studies, 1943.

Eight research papers are here presented to commemorate the thousandth anniversary of the death in 942 of Rabbi Saadia ben Joseph, distinguished head ("Gaon") of the Jewish Academy at Sura in Babylonia, philosopher, Bible translator, talmudist, and voluminous writer. Saadia lived in the period when Islamic philosophy and science quite overshadowed the learning of the talmudic schools. He was the first Jewish scholar of his time to understand the new spirit and to synthesize Greek and Arabic thought with the Jewish tradition. He thus points the way to Maimonides and Crescas. The studies offered in this memorial volume are intended for specialists in the field and deal with selected aspects of Saadia's liturgical, philosophical, and biblical writings. One paper sets forth his mathematical studies, and another furnishes a bibliography. No comprehensive biographical sketch is included.

JAMES B. HODGSON

THE "TIMAEUS" AND THE "CRITIAS" OF PLATO: THE THOMAS TAYLOR TRANSLATION. With a Foreword by R. Catesby Taliaferro. New York: Pantheon Books, Inc., 1945. $2.75.

This reprint in the Bollingen series of Taylor's translation of the *Timaeus* is indeed welcome. Thomas Taylor (1758–1835), without the benefit of university training and struggling as a private scholar and amateur, became an interpreter of the mystical tradition in ancient Greek metaphysics. He understood Plato in the light of Pythagorean number symbolism and Neo-Platonic speculation. The translation of Plato, fifty-five dialogues and twelve letters, appeared in 1804. His vast literary output does not reveal the judgment of a critical mind, and his style is in keeping with the taste of Dr. Johnson. Yet his labors deserve the attention of modern readers. In the Foreword Professor Taliaferro casts some light on certain of the technical problems of the dialogue.

JAMES B. HODGSON

NATHANIEL WILLIAM TAYLOR, 1786–1858. By Sidney Earl Mead. Chicago: University of Chicago Press, 1942. Pp. xii+241. $2.50.

The title of this book does not indicate its contents, for it is not the usual type of biography. It is probably not overstatement to say that Taylor's life is employed here as an artifice and a symbol: an artifice for tying together the developing currents of American Calvinistic thought; a symbol for the author's primary concern, which is the rise of the "New Haven" theology usually called "Taylorism."

On the scholarly side it is a thorough piece of research into an important and neglected period, following the adjustments of Connecticut religious thought and churchcraft to the disestablishment, the second Awakening, the fight with Unitarianism, and the revolt of the orthodox Calvinists. The author's thesis is that "Taylorism," primarily molded as an instrument of revivalism and secondarily put to polemic use against the Episcopalians and the Unitarians, was really the offspring of "old

Calvinism" and not "Consistent Calvinism," as is often maintained.

On the artistic side the book purports to be an imaginative reconstruction attempting to make clear the temperamental differences which gave these doctrinal squabbles such earnestness and intensity in the minds of their participants. The author falls short in this genre. It remains a solid job of workmanship by a professional church historian.

FRANK B. EBERSOLE

FOREWORD TO PHILOSOPHY. By Charles F. Sawhill Virtue. Cynthiana, Ky.: Hobson Book Press, 1944. Pp. 92. $1.50.

This little essay attempts to show the rank beginner what philosophy does in the world by giving him a sample analysis of some problems in value theory. The problems selected include some perennial to the undergraduate, especially the science-religion debate, and others currently of special interest, questions about the present war and the peace.

FRANK B. EBERSOLE

THE NEO-IDEALIST POLITICAL THEORY. By Frederick Philip Harris. New York: King's Crown Press, 1944. Pp. 119. $1.50.

This is a friendly but not uncritical study of the English neo-idealist political philosophers, whom it has become more fashionable to refute than to understand. It treats less of the historical development than the striking adaptability of the idealist metaphysic to practical politics and the wide range in political views from T. H. Green to David George Ritchie. The express purpose of the work is limited to a corrective, pointing out especially (1) the real continuity of the idealists with the Utilitarians, and (2) the real break of Spencer and Huxley with the earlier laissez faire liberalism.

FRANK B. EBERSOLE

HINDUISM AND BUDDHISM. By Ananda K. Coomaraswamy. New York: Philosophical Library, n.d. Pp. 86.

This book contains two short lectures, one on Hinduism, one on Buddhism, giving what the author claims is a strictly orthodox interpretation of the mythology, theology, and ethics of each. Special point is made of citing parallels with Neo-Platonism and Christian mysticism in an effort to show that the "Philosophia Perennis—is always and everywhere consistent with itself." The book suffers perhaps from being "characteristically Indian," or, if that is not the trouble, then from impatience with the uninitiate in Eastern scripture.

FRANK B. EBERSOLE

BOOKS RECEIVED

AMERICAN JEWISH COMMITTEE. To the Counsellors of Peace (Recommendations of the American Jewish Committee). New York: American Jewish Committee, 1945. Pp. xi+110.

APPLEBY, PAUL H. Big Democracy. New York: Alfred A. Knopf, Inc., 1945. Pp. viii+197. $2.75.

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